MENTAL RETARDATION ABSTRACTS

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Mental Retardation Abstracts is a quarterly publication of the Division of Mental Retardation, Rehabilitation Services Administration. It is a specialized information service designed to assist the Division in meeting its oblication to plan, direct and coordinate a comprehensive nationwide program for those with mental retardation and related handicaps. Specifically, this service is intended to meet the needs of investigators and other workers in the field of mental retardation for rapid and comprehensive information about new developments and research results and to foster maximum utilization of these results.

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DENTAL CARE FOR THE MENTALLY RETARDED: AN ANNOTATED BIBLIOGRAPHY*

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Since the latter part of the nineteenth century, humanitarian interest has been growing in the care of mental retardates and of handicapped children and adults. With the impetus given the whole movement by President Kennedy in 1960, there has been a great expansion of public and private concern for these people. Accompanying a desire to make the mental retardate and handicapped more comfortable and to bring them more education and vocational training, there has been an increasing wish to improve their physical and psychological characteristics. Because abnormalities of the cranio-facial-dental complex often lead to public revulsion, poor communicative ability, even malnutrition, and further psychological damage, a number of public health officials and dentists have sought better, more sustained, and more widely available dental services for the mentally retarded, cerebral palsied, or otherwise handicapped. Therefore, an annotated bibliography on dental care for the mentally retarded is presented which covers selected dental literature from the years 1959 to 1969; this bibliography does not include articles which describe dental anomalies associated with various mental retardation syndromes except as they affect the actual dental care of the individual patient. An annotated bibliography covering the dental anomalies associated with mental retardation is in preparation and will be published in the future.

GENERAL

ACADEMY OF DENTISTRY FOR THE HANDICAPPED. Tenth annual supplemental bibliography. Dental care for the handicapped. *Bulletin of the Academy of Dentistry for the Handicapped,* 2(2):20-21, 1964.

A bibliography of 32 references from 1960 through 1964 on dentistry and the exceptional child is presented.

ALBUM, MANUEL M. An evaluation of the dental profile of neuromuscular deficit patients: A pilot study. *Journal of Dentistry for Children,* 31(3):204-227, 1964.

An in-depth study of 62 CP children's dental conditions including malocclusion data, statistical measure, physical measurements, head and face measures, roentgeneographic, cephalometric studies, oral conditions, and neurological data is presented.

BORGLIN, KNUT. Gingivahyperplasier hos epileptiker (Hyperplastic gingiva of epileptic patients). *Sartryck ur Svensk Tandlakare-Tidskrift,* 56(10):557-563, 1963.

The teeth and gingiva of 274 epileptics at the Vipeholm Hospital, Lund, Sweden, were examined and it was determined that patients treated with hydantoin sodium often suffer from gingiva hyperplasia.

BROOK, MAURICE. Dental treatment for the mentally handicapped. *Parent's Voice,* 18(2): 22-24, 1968.

Hospitals for the MR, because of overcrowding, understaffing, and underfinancing, have less than adequate dental care programs. Aroused parents can effect changes for the better in both in-hospital service and out-patient service.

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*Grateful acknowledgement is given to Mr. Lemar J. Clevenger and Miss Carolyn Shaffer for their help in preparation of this manuscript.

BROWN, R. HARVEY. Dental treatment of the mongoloid child. *Journal of Dentistry for Children*, 32(2):73-81, 1965.

Dental abnormalities of the mongoloid child are reviewed as well as other physical and mental characteristics. It is suggested that all aspects of the mongoloid child be considered when dental treatment is in order.

BROWN, RUSSELL, & SHARMA, PREM S. Facial growth of cerebral palsy subjects: A roentgenographic cephalometric study. *Cerebral Palsy Journal*, 28(6):3-8, 1967.

Cerebral palsied Ss showed a retrognathic skeletal and dental pattern in younger age groups, which lessened with age until older ages, were within normal limits. It is thought that specific muscle therapy can improve speech, mastication, and the perioral environment.

BRUCE, HARRY W. Special dental care programs. *Journal of Dentistry for Children*, 30(3):202-205, 1963.

It is estimated that the handicapped population in the United States is approximately 2 or 3 million, and the number is growing each year. Public health services and teaching programs must begin to provide dental care for this underprivileged group. Dentists must take a leading role in this effort.

BUTTS, JOHN E. What do Georgia dentists think about dentistry for mentally retarded children? *Journal of Georgia Dental Association*, 39(4):23-28, 1966.

A survey of dentists in Georgia revealed that the majority were interested in the problem; that they are not aware that there are approximately 131,000 classified as MR; that inadequate training and facilities are blocks to care of the MR; and that finances were not a problem.

BUTTS, JOHN E. The dental status of MR children. I. A survey of present practices among dentists in Georgia. *Journal of Public Health Dentistry*, 27:154-165, 1967.

A large number of Georgia dentists reported an inability to treat MR children because of lack of special training and inadequate facilities. The need for a dental program for the MR in Georgia is expressed.

BUTTS, JOHN E. Dental status of MR children. II. A survey of the prevalence of certain dental conditions in MR children of Georgia. *Journal of Public Health Dentistry*, 27:195-211, 1967.

Results of examinations performed on 1,343 non-institutionalized and 543 institutionalized MR children in Georgia are tabulated and the effects of MR on dental conditions are analyzed.

BUTTS, JOHN E. The dental status of MR children: III. A survey of blocks to obtaining dental care inherent among parents of retarded children in Georgia. *Journal of Public Health Dentistry*, 28(1):16-19, 1968.

A survey was performed by the Georgia Department of Public Health to determine the reasons for lack of dental care for EMRs and TMRs in Georgia. The main blocks to obtaining dental care appear to be related to the parents' socioeconomic status.

CAMPBELL, OLIVER. Dental treatment of cerebral palsied children. *Journal of New Jersey State Dental Society*, 37(5):197-203, 1966.

Muscular movements of the CP make corrective dental treatment difficult and removable prosthetics impossible; therefore, the dentist should work to prevent early loss of primary teeth and to keep adult teeth healthy.

CHASENS, ABRAM I. Periodontics and oral hygiene of the physically limited dental patient. *Cerebral Palsy Journal*, 26(3):10-11, 1965.

Although there are no specific periodontal disorders correlated with physically limitations, handicapped persons generally have a dental disorder incidence 3 to 4 times that of normal persons. This association is believed mainly due to neglect.

COHEN, M. MICHAL, WINDER, RICHARD A., & SHKLAR, GERALD. Periodontal disease in a group of mentally subnormal children. *Journal of Dental Research*, 39(4):745, 1960.

Dental conditions were evaluated in 300 MR children of which 100 were mongoloid; it was discovered that periodontal disease was more prevalent and more severe in the mongoloids than in the non-mongoloids in this study.

CONNELLY, D. R. Management of dental problems of institutionalized mentally retarded children. *Mental Retardation (AAMD)*, 1(6):294-298, 1963.

Oral hygiene programs in institutions should be directed to attendants and ward nurses. Extensive records should be kept to expedite the dentist's work as 1 dentist often serves 1,000 patients.

FISHMAN, SHERWIN R., YOUNG, WESLEY O., HALEY, JOHN B., & SWORD, CHARLES. The status of oral health in cerebral palsy children and their siblings. *Journal of Dentistry for Children*, 34(4):219-227, 1967.

Dental characteristics of CPs and their siblings in Idaho were studied and it was found that oral hygiene was worse, there were more missing teeth, and more severe periodontal disease in CPs than in their siblings.

GIBSON, W., & CONCHIE, J. Observation of children's teeth as a diagnostic aid: Part II: Developmental difficulties reflected in enamel and pigment changes in teeth. *Canadian Medical Association Journal*, 89:129-134, 1964.

Tooth enamel and pigment abnormalities are correlated with developmental abnormalities and certain MR syndromes. A case history of kernicterus with an enamel defect is presented.

GOTSCH, AUDREY. Public health notes. Handicapped patients a concern to the division. *Illinois Dental Journal*, 36(1):385-386, 1967.

Since current philosophy is to keep handicapped children within the community, an effort needs to be made to provide dental service also within the community.

HANMAR, S. L., & BARNARD, K. E. The mentally retarded adolescent: A review of the characteristics and problems of non-institutionalized adolescent retardates. *Pediatrics*, 38: 845-857, 1966.

A survey of 44 adolescent retardates showed dental care was badly neglected, poor dental health was present, and few had received any periodic dental exams. Diet in this group included too many sweets. Generally, dental conditions were similar to normal adolescents but more intensive.

HARRISON, L. M., JR. Dentistry for handicapped children. *Journal of the Michigan State Dental Association*, 46(10):277-285, 1964.

Dental care of handicapped children poses 2 problems: the management of the child and the dental conditions associated with the particular handicap. If the first is solved, the second becomes a routine matter. The dentist should be familiar with each condition and should accept the patient first as an individual and secondly as a handicapped child.

HAYWARD, H. L. Dentistry and the handicapped. *Dental Survey*, 39(6):54-56, 1963. (Editorial)

Although cranio-facial deformities (the area of responsibility of the dentist) are more destructive to personality development and are associated with many speech disorders than any other area, very few new programs for the handicapped include dental services. A call is issued for more attention to this area of concern in recommendations for new programs.

HUBERTS, C. W. J. Schets van een taakstelling voor de tandheelkunde m.b.t. inrichtingen van onderzoek van geestelijk of lichamelijk gehandicapte kinderen (Sketch of an approach of dentistry to the examination and treatment of institutionalized mentally and physically handicapped children). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg*, 5(4):138-147, 1968.

The dentist's examination and treatment of institutionalized MRs are discussed and examples are given.

ISSHIKI, YASHUSHIGE. Occlusion of cerebral-palsied children. *Bulletin of Tokyo Dental College*, 9(1):29-40, 1968.

More malocclusions are found in athetoid CPs than in spastic CPs; however, malocclusion is high in both groups and leads to difficulties in chewing, swallowing, and speaking.

JAGO, J. D. Dentistry and the mentally impaired. *Australian Children Limited*, 2(4): 163-165, 1964.

Dental genetics, specific drug effects on tooth development, and preventive measures are discussed in relation to MR. Areas where more research is needed were also discussed.

JAGO, J. D. The special needs of the handicapped child. The size of the problem. *Australian Dental Journal*, 9:502-510, 1964.

The basic criteria for deciding whether a child is handicapped is to a large degree the amount of cooperation between the child and the dentist. Dental anomalies are more frequent in Down's syndrome, enamel hypoplasia is more common in CP children, hyperplastic gingivitis is often found in epileptics and rampant caries are common in all handicapped children; however, there are no real problems in treating these children, but dentists need to accept more responsibility in this area.

JAGO, J. D. Dentistry and the mentally subnormal. *Journal of Mental Subnormality*, 11(21):81-88, 1965.

Dental anomalies are more frequent among the MR, especially those with Down's syndrome; periodontal disease is also more prevalent. Difficulties in maintaining oral hygiene are encountered in the MR because of poor manual dexterity. Preventive measures include fluoridation, proper diet, and regular dental check-ups.

KOBREN, ABRAHAM. Changing practices and evolving trends in dentistry today for our physically limited patient. *Cerebral Palsy Journal*, 26(3):6-7, 1965.

Dental student education needs to include treatment of handicapped patients. The federal government is supporting this phase of dental education.

KOPEL, HUGH M. The challenge of the chronically ill and handicapped in dentistry. *Bulletin of the Academy of Dentistry for the Handicapped*, 2(2):16-19, 1964.

Medical research has resulted in more handicapped persons surviving longer than before; therefore, the problem of dental care for these people is receiving more attention from federal agencies. It is emphasized that good dentistry is the same for handicapped as for normal individuals, but handicapped children often represent a management problem.

KRAUS, BERTRAM S., CLARK, GERALD R., & SEISHI, W. OKA. Mental retardation and abnormalities of the dentition. *American Journal of Mental Deficiency*, 72(6):905-917, 1968.

A significant correlation is shown to exist between MR and dental crown abnormalities in permanent teeth.

KRAUS, BERTRAM S., JORDAN, RONALD E., NERY, EDMUNDO B., & KAPLAN, SIDNEY. Abnormalities of dental morphology in mentally retarded individuals: A preliminary report. *American Journal of Mental Deficiency*, 71(5):828-839, 1967.

A significant correlation is shown to exist between MR and dental abnormalities, and mongoloids have many more abnormalities than other MR Ss. Developmental factors that influence MR may also affect tooth development.

LATIMER, RUTH. Dental care for mentally retarded persons: The profession meets a challenge. *Journal of Public Health Dentistry*, 29(2):127-129, 1969.

A survey of dentists in the tri-state area of Greater Cincinnati showed 204 dentists who could treat MR persons and who have treated approximately 1,100 MRs yearly. Data from the survey include: age of patients; referral and treatment; oral hygiene; sedation use; special training; referrals by dentists; and continuing education of dentists.

LAW, FRANK E. Problems and programs of dental health care for chronic disease groups. *Journal of the Tennessee State Dental Association*, 39(Part 1; Number 3):201-207, 1959.

Dental services needs, problem solutions, equipment development, and identification of community resources should be objectives of projects on problems and programs of dental health care for chronic diseases groups.

LEVITAS, T. C. Handicapped child - A plea for help. *Alpha Omegan*, 56:136-140, 1963.

MR children need dentistry as much as normal children, yet 37% have never been to a dentist, 58% brush their teeth 1 time a week or less, and over 83% have some type of periodontal disease; therefore, it is incumbent upon dentists to give the best service to all who need it and the handicapped and MR are especially deserving of extra effort.

MAGNUSSON, B., & DE VAL, R. Oral conditions in a group of children with cerebral palsy. I. General survey. *Odontologisk Revy*, 14: 385-402, 1963.

Seventy-six CP children in Vasterbotten (Sweden) had more caries and 3 times as much gingivitis as did 76 normal children. The higher incidence of dental disorder may be due to the difficulties of maintaining oral hygiene in CPs. Specific results are listed.

MAGNUSSON, B. Oral conditions in a group of children with cerebral palsy. II. Orthodontic aspects. *Odontologisk Revy*, 15:41-53, 1964.

Studies of the dental arches of 33 CP children and 33 normal children were made. Results and discussions are given.

MATHENY, M. M. Oral functions in cerebral palsy. *Journal of the New Jersey Dental Society*, 37(5):204-209, 1966.

Problems in CP include feeding problems from severe involvement of the oral structures; nutritional problems; articulation problems; and an understanding of how these areas are interrelated plus a knowledge of each type of CP is necessary before dental care can begin.

MILLER, SIDNEY L. Dental care for the mentally retarded: A challenge to the profession *Journal of Public Health Dentistry*, 25(3): 111-115, 1965.

Dental care for the MR may be neglected because of financial inability, parental apathy absence of special facilities and accepting dentists, even though MRs may be more in need of dental care than ordinary children.

MOELINGER, C. E. Down's syndrome--A review of the recent literature. *Journal of the Missouri Dental Association*, 46(10):8-13, 1966.

The oral manifestations of mongolism include large tongues, Class III malocclusions, microdontia, and a high frequency of missing teeth. There appears to be a relatively low incidence of caries in mongoloids; however, more research is needed on all dental aspects of this syndrome.

POLLACK, BURTON R. Dentistry of the mentally retarded child. *Maryland Medical Journal*, 14(7):91-92, 1965.

Provision of dental care for the MR child is primarily a problem in patient management and complete dental care is now possible because of the availability of new dental techniques, hospital facilities, and the cooperation of pediatricians and anesthesiologists. It is now up to the health professions to see that all children, regardless of handicap, receive proper dental care.

Relation between eruption of permanent teeth and stage of mental development. *Dental Abstracts*, 5:336, 1960.

No difference in the number of erupted permanent teeth could be established between 400 normal and 392 MR children in school in Sweden.

ROSENBAUM, CHARLES H. Occlusion of cerebral palsied children. *Journal of Dental Research*, 45(6):1696-1701, 1966.

An oral exam of 124 CP children with occlusion evaluated per Angle's classification and a clinical evaluation of the swallowing pattern of each child was made with results and interpretations discussed.

ROSENSTEIN, SOLOMON N. Operative dentistry and endodontics of the physically limited patient. *Cerebral Palsy Journal*, 26(3):8-10, 1965.

Goals in treating the physically handicapped dental patient are discussed. Generally, these goals should contribute to the child's growth and habilitation.

Services for the mentally retarded. *WHO Chronicle*, 22(10):433-438, 1968.

A review of MR, types of MR, services needed in the field of MR, and services available for the MR is presented.

SMITH, CHARLES E., WILLIAMS, J. EARL, & LLOYD, JOHN L. The dental health status of the mentally retarded in an institutional population. *Mind Over Matter*, 12(2):14-26, 1967.

A survey of 400 institutionalized MRs demonstrated a low incidence of tooth decay, but a major problem of periodontal disease. There appears to be a serious need for better oral hygiene in this group.

SOENTGEN, M. L., BRENMAN, H., & KEITEL, H. G. Dental staining. *Lippincott's Medical Science*, 16(12):48-52, 1965.

A table of etiologies and photographs of tooth staining is presented.

STEINBERG, A. D. The Lincoln dental caries study. I. The incidence of dental caries in persons with various mental disorders. *Journal of the American Dental Association*, 74 (5):1002-1008, 1967.

Mentally defective Ss had lower caries scores than mentally retarded Ss and those with a lower IQ had a significantly lower caries score than the higher IQ groups. The poorer the oral hygiene, the lower the caries score. Thirty-nine percent of the mentally defective were caries free; 15% of the MR were caries free.

STOCKER, H. S. Dentistry for God's forgotten children. *Journal of Dentistry for Children*, 30(3):161-167, 1963.

MR children present special problems to the dentist both in regard to their unique syndromes and in physical management; nevertheless, the dentist must be included in any program of health care. Problems and some solutions are discussed and it is suggested that more dental schools offer expanded postgraduate and graduate work in this area.

SWALLOW, J. N. The dental care of the cerebral palsied child. *Cerebral Palsy Bulletin*, 3:488-492, 1961.

Dental disorders are more prevalent in CP children than in normal children and each type of CP has its own unique problems. Management should be directed to helping the CP child become a part of society and good oral hygiene and dietary habits should be stressed.

SWALLOW, J. N. Dental diesease in cerebral palsied children. *Developmental Medicine and Child Neurology*, 10(2):180-189, 1968.

Dental disorders in 298 cerebral palsied children were no higher than in normal children; however, the CP children had received much less dental care.

SWALLOW, J. N. Dental disease in children with Down's syndrome. *Journal of Mental Deficiency Research*, 8(Part 2):102-118, 1964.

Oral examination of children with mongolism demonstrated no real difference in the prevalence of caries in mongoloids as compared to other MR children. This data is in some disagreement with previous reports; the discrepancy may be due to the fact that permanent tooth eruption in mongoloids is delayed.

SWALLOW, J. N. Mental retardation and dental abnormalities. *Developmental Medicine and Child Neurology*, 10(6):795-796, 1968.

The incidence of dental abnormalities is higher in the MR than in normal controls and it is suggested that the establishment of a science of odontoglyphics may distinguish other developmental abnormalities. More research is needed to link any particular dental abnormality with a particular MR systemic condition.

SZNAJDER, NORMA, CARRARO, JUAN J., OTERO, ELLENA, & CARRANZA, FERMIN A., JR. Clinical periodontal findings in trisomy 21 (mongolism). *Journal of Periodontal Research*, 3(1): 1-5, 1968.

Mongoloid patients are found to have high Ramiford's indices for gingivitis, calculus, attrition, plague; a high degree of periodontal disease exists in these patients at ages in which it does not exist in normal children.

TOTH, K., & SZABO, I. Die Verhaltnisse der Zahnkaries bei neurologisch-psychiatrisch erkrankten Personen (The proportion of dental caries in oligophrenic and mentally ill persons). *Deutsche Stomatologie*, 15:413-416, 1965.

Dental examinations of 975 persons showed that oligophrenic Ss had less caries than Ss with nervous or mental disorders.

TRITHART, A. H. Guidelines for dental care and treatment programs for children. *Journal of School Health*, 33(2):70-75, 1963.

Guidelines for dental care of children are listed with a discussion of each point. It is recommended that if a large percentage of the dental care population is handicapped children, special guidelines be constructed for them.

WARNER, ELIZABETH M. Guidelines to dental health education programs for children. *Journal of School Health*, 31(6):193-198, 1961.

Dental health education should help each child achieve his own potential for dental health, rather than setting a standard goal for all children, and dental information for children should be accurate and suitable for each child's particular age. Parents, teachers, dentists, and other health personnel need to assume responsibility for securing dental care for children in their formative years.

WOLF, WILLIAM C. Dental care for the mentally retarded. *Dental Digest*, 72(10):456-461, 1966.

An increasing demand for dental care for MR persons has led to an increased demand for dentists able to care for these persons. MR patients are much like normal children in practice and a large amount of patience is necessary in dealing with them.

WOLF, WILLIAM C. Incidence of Dilantin gingival hyperplasia. *Journal of the Florida Dental Society*, 37(4):7-12, 1966.

Ss receiving Dilantin anticonvulsant therapy are more susceptible to gingival hyperplasia if they are under 25 years of age or if they are Negro or dark complexioned.

YOUNG, WESLEY O. Guidelines to successful dental health programs for children: Prevention. *Journal of School Health*, 31(6): 187-192, 1961.

Three guidelines are suggested for prevention of dental disease: the most important dental problems should have priority; the most effective prevention procedures should be used; and the entire child population should be covered.

YOUNG, WESLEY O., & MINK, JOHN R. Dental care for the handicapped child. *Rehabilitation Literature*, 26(4):98-103, 1965.

Problems in dental care of the handicapped child are discussed in terms of services available and the role of various agencies in financing and administration of such services.

YOUNG, WESLEY O., & SHANNON, JEAN H. Providing dental treatment for handicapped children. *Journal of Dentistry for Children*, 35(3):225-240, 1968.

Dental treatment was offered to handicapped children in Idaho over a 3-year period; although handicapped children have initially greater needs, they can be treated successfully in private dental offices and at a cost that is not prohibitive.

TRAINING AND INSTITUTIONAL SERVICES

ADELSON, JERRY J. Dental management of brain-damaged individuals. *New York State Dental Journal*, 28(1):10-14, 1962.

Forty brain-damaged patients were treated successfully using special management techniques described which minimize behavioral characteristics of brain-damaged Ss and allows minor operative procedures.

ARRA, M. C. Report on continuing education program--Dentistry for handicapped children. *Journal of the Wisconsin State Dental Society*, 44(7):199-201, 227, 1968.

Four-day programs to demonstrate methods of providing dental services to the MR and physically handicapped; to train dentists in hospital procedures; and establish a state registry of trained dentists who can treat these patients are described. A faculty of 15 was used for classes of 12 dentists each; the overwhelming response to these programs demonstrates the need for additional projects of this type.

Baylor provides dental care for retarded children. *Baylor Dental Journal*, 14(2):25-26, 1964.

Baylor University in association with Denton State School has assumed responsibility for dental care of the MR children at Denton and has established a graduate training program in dentistry to train dental students in dental care of the handicapped.

BENSBERG, GERARD J., BARNETT, CHARLES D., & MENIUS, JACK A. A survey: Dental services in state residential facilities. *Mental Retardation (AAMD)*, 4(1):8-13, 1966.

A questionnaire returned by 27 southern state institutions for the MR described the dental service programs and dental staff available in the institutions.

BRINKER, GLENN. N. Dentistry for the handicapped. *Journal of Indiana State Dental Association*, 40(8):401-403, 1961.

A program for dentistry which was proposed by the ISDA was used at Fort Wayne State School, Indiana and has provided promising results. Problems fall into categories of personnel, dental care standards, facilities, and equipment, prosthetics services, oral hygiene, education, and research.

COHEN, DAVINA LOUISE. Dental hygiene instruction for retarded children. *Dental Survey*, 39(2):74, 1963.

Twelve MR children (CA 9-15 yrs; MA 5-9 yrs) are instructed in proper dental hygiene and diet by a dental hygienist. Most of the children required individual help, but most retained the information to a large extent.

Dental care for retarded children. *Bulletin of the Cincinnati Dental Society*, 35(3):13, 1966.

A cooperative community effort to provide dental care for MR children in Sangamon County, Illinois is discussed. None of the problems encountered were serious enough to preclude such a program.

Dental center treats handicapped children. *Public Health Report*, 78:141-142, 1963.

Complete dental care for children who cannot be treated in a regular clinic are treated in a center at Children's Hospital, Baltimore, (Maryland). The staff includes anesthetists, dental specialists, pediatricians, and nurses. MR children account for approximately 38% of the referrals.

DeSZNAJDER, NORMA G. Las afecciones odonto-estomatologicas en la paralisis cerebral infantil (Dental disease in children with cerebral palsy). *Revista Odontologica De Argentina*, 52:96-102, 1964.

Seventy-five CP patients were examined at Hospital Fiorito in Buenos Aires (Argentina) and results are listed. Generally, the types of dental disorders were similar to normal children; however, the incidence was higher.

FORD, ALICE O. A training experience with mentally retarded children. *Journal of the American Hygienists Association*, 39(3):156-157, 1965.

The dental clinic at Children's Center, Laurel, Maryland, has established a program of general oral care for the MR to promote dental prophylaxis, encourage each child's confidence in the dentist, to motivate counselors and teachers to encourage dental care, and to provide corrective care. The program includes a dental hygienist, a dentist, and a group of dental hygienists in training.

FORT WAYNE STATE HOSPITAL AND TRAINING CENTER. Annual Reports 1963-1965. Fort Wayne, Indiana. Fort Wayne State Hospital and Training Center, 101 p.

The Fort Wayne State Hospital and Training Center includes among its services, a dental clinic with a staff of 2 full-time dentists, 5 part-time dentists and consultants in oral surgery and periodontics.

Handicapped to have dental clinic in Pennsylvania. *Journal of the American Dental Association*, 64:406, 1962.

The University of Pennsylvania School of Dentistry has started a dental clinic for handicapped patients, especially children.

HEINZ, HAROLD W. Dental clinic. *Broadcaster*, Newsletter of the Beatrice State Home, 25(2): 1-2, 1969.

MRs at the Beatrice State Home participated in a program called "Join the Smile-In." It is not true the MR must have poor teeth, only neglect causes the higher incidence of dental disease in the MR.

KOBREN, ABRAHAM. Dental education and the handicapped child. *Bulletin of the New York Society of Dentistry for Children*, 14(2):10-11, 1963.

Dental education courses have in the past concentrated on training specialists such as periodontists and pedodontists; now dental schools should concentrate their efforts on training dentists who can treat all varieties of patients especially handicapped or MR patients.

MERCER, VICTOR H., & GISH, CHARLES W. Continuing role of the Indiana State Dental Association in the improvement of dental programs in state institutions. *Journal of Public Health Dentistry*, 28(1):2-4, 1968.

The results of dentists' and state dental organizations' efforts to improve dental treatment in Indiana's state institutions are reviewed.

NEEDHAM, PETER L. Dental student-special patient program at University of Missouri at Kansas City. *Journal of Dental Education*, 28:294-295, 1964.

A program of instruction for students in the dental treatment of chronically ill or handicapped patients in Kansas City, Missouri, is described.

New clinical service for the apprehensive dental patient opens at the Grand Central Hospital. *New York University Journal of Dentistry*, 20(4):110, 1962.

A dental clinic for the handicapped was opened at Grand Central Hospital (New York). The clinic will treat all handicapped individuals but is especially equipped to handle MRs.

Pennsylvania opens handicapped clinic. *Pennsylvania Dental Journal*, 29(4):18-19, 1962.

A clinic with 3 full-time staff members as well as dental students has been opened in a southwestern Pennsylvania suburb and serves handicapped children including CPs and MRs. The clinic is supported by federal grants and is under the auspices of the University of Pennsylvania.

Pilot program in dentistry for the handicapped. *Dental Students Magazine*, 40:547, 576, 1962.

Children's Hospital (Baltimore, Maryland) is operating a dental treatment program for persons who cannot be managed in the average dental office and who must be treated under general anesthesia. Personnel administering the program include 14 dentists, 10 physicians, and hospital interns and residents.

Program to profice dental care for MR begins. *Journal of the Tennessee Dental Association*, 44(3):280, 1964.

A program to provide dental care for MR children up to age 21 was initiated by the Dental Division in the state of Tennessee. Dental care is provided by local dentists, clinics, or hospitals, and reimbursements are made from special funds administered by the state.

ROSEN, L. J. Dental care for the handicapped child. *Journal of the Missouri Dental Association*, 42(9):15-24, 1962.

A report of a dental seminar held June 21-23, 1962 at Washington University is given which gives practical advice on the topics and techniques; definitions for handicapped; medication; office medication for dental patients; complete medication, rules for drug administration, emergency treatment for drug complications, general anesthesia; equipment; procedures in establishing a dental program for the handicapped and setting up a hospital program.

SCHUH, E. Dental disease in mentally handicapped children: A clinical problem. *International Dental Journal*, 13:523-526, 1963.

Aspects and experiences gained in the dental treatment program for mentally retarded children in Lainy Hospital, Vienna, Austria, are described.

SELLINGSLOH, W. C. Dental program for the MR in a state institution. *Texas Dental Journal*, 80:7-9, 1962.

A dental service program is described as administered in the Austin State School Farm Colony, a custodial institution for the most severely retarded, non-trainable and non-educable males, in Texas.

Seton Hall inaugurates program for dental care of handicapped children. *Journal of the New Jersey Dental Society*, 33(6):249-251, 1962.

The program of dental treatment for handicapped children inaugerated at Seton Hall has 5 goals: better preparation of dental students; postgraduate training; determination of new methods in care of handicapped children; identification of problem areas; and delienation of the effectiveness of preventive dental principles.

SMITH, CHARLES E, WILLIAMS, J. EARL, & LLOYD, JOHN L. al. The dental health status of the mentally retarded in an institutional population. *Journal of the Tennessee Dental Association*, 46:138-146, 1966.

Four hundred residents of the Clover Bottom Hospital and School for the Mentally Retarded were surveyed with respect to dental health and the influences of age, race, and sex. A large proportion of the sample group had missing teeth, and a high periodontal index score and poor oral hygiene were endemic. Malocclusion was also a problem in institutionalized MRs and a large percentage of patients being treated with dilantin suffered from gingival hyperplasia.

SNYDER, JOHN R., KNAPP, JUDITH J., & JORDAN, WILLIAM A. Dental problems of non-institutionalized mentally retarded children. *North-West Dentistry*, 39(2):123-133, 1960.

One hundred thirteen non-institutionalized MRs were studied in a 4-county project of the Minnesota State Health Department. Three methods of investigation were utilized: 44 dentist interviews; parents of 96 MRs were interviewed; and a complete oral examination was made. Findings discussed include: vital data; dental caries prevalance; periodontal disorders; occlusion disorders; dietary considerations; dental services availability; and other medical problems. Recommendations are also given.

SNYDER, JOHN R., JORDAN, WILLIAM A., KNAPP, JUDITH J., & HAAG, BETTE JEANNE. Dental problems of non-institutionalized MR children: Follow-up study. *North-West Dentistry*, 41(1): 11-15, 17, 1962.

A follow-up survey of the 4-county project for retarded children demonstrated the value of this type of service to the retarded child, the parent, and the dentist. Because of this project and the response to it, new hospital dental services are now available. More follow-up work is suggested.

TANNENBAUM, KENNETH A. Oral conditions of the MR patient. *Journal of Dentistry for Children*, 27(4):277-280, 1960.

Clinical exams done on 38 MR and 20 emotionally disturbed patients at the Devereux School showed significant differences between these groups in regard to caries, nervous habits, dental arches, missing teeth, and gingival disorders.

TRI-STATE PLANNING AND IMPLEMENTATION PROJECT FOR MENTAL RETARDATION. Dental services directory for the mentally retarded.

A directory of dentists willing to work with the MR is given for the several counties in the 3-state area of Indiana, Kentucky, and Ohio.

YATES, GLADYS. Mentally retarded receive dental care through Baylor's Graduate Pedo Program. *DDS*, 12(8):1, 8, 1967.

A program of specialized graduate training in pedodontics for mentally retarded children at Baylor University in cooperation with the Denton State School is described.

YOUNG, WESLEY O. Dental care program tried for handicapped. *Public Health Report*, 79: 243-244, 1964.

A 2-year experimental program in Idaho demonstrated that dental services can be provided for handicapped children in their own communities.

METHODS

ADDELSTON, HAROLD KANE. Tell, show, do--how dentist removes fears of unknown. *Children Limited*, 16(5):5, 1967.

A technique developed to calm children undergoing dentistry can be used for MR children, although it may take longer. In SMR, a general anesthesia may be necessary.

ALBUM, MANUEL M., BOYERS, CHARLES L., & KAPLAN, ROBERT I. Hospital dentistry for the pedodontist--Philosophy. *Journal of Dentistry for Children*, 35(2):153-160, 1968.

The philosophy of admitting handicapped, MR, and mentally ill to hospitals for dental care under general anesthesia is discussed.

BERMAN, M. H. Restorative dentistry under general anesthesia for the exceptional children. *Journal of Dentistry for Children*, 34: 493, 1967.

A pedodontist criticizes the advocacy of general anesthesia as an office procedure in dental care. Various dangers inherent in the use of this procedure are pointed out and a recommendation is made that general anesthesia only be done under hospital conditions.

BORGLIN, KNUT, & RAYNER, STURE. Praemedicinering vid tandbehandling av oligofrena patienter (Premedication for dental work on oligophrenic patients). *Sartryck ur Sveriges Tandlakarforbunds Tidning*, 55(5):134-138, 1963.

A premedication double-blind test of a group of MR patients with the drug, Azacon, showed that only the higher IQ patients were responsive to the drug action.

BORGLIN, KNUT, & RAYNER, STURE. Praemedicinering vid tandbehandling (Premedication for dental work on mentally retarded patients). *Sartryck ur Sveriges Tandlakarforbunds Tidning*, 51(17):1-6, 1959.

A preliminary report on the use of premedication in dental care of the mentally retarded is given.

BORGLIN, KNUT, HARDAL B., & RAYNER, S. Om samband mellan defenylhydantoinmedicinering gingivahyperplasier och C-vitaminslandard (Use of ascorbic acid with Dilantin to minimize gingival hyperplasia). *Svensk tandlak Tskr*, 58(6):309-314, 1965.

The use of ascorbic acid with MRs receiving Dilantin medication to minimize gingiva hyperplasia in these patients is described.

CARREL, ROBERT. A supplement to an intravenous amnesia technique in pedodontic cases. *Anesthesia Progress*, 15(2):39-40, 1968.

In an evaluation of 250 patients (mentally retarded, problem, chronically ill, and apprehensive children), it was found necessary to supplement intravenous amnesia with nitrous oxide (in 29% of the group) to complete dental care.

GOLDSTEIN, IRWIN C., & DRAGON, ARNOLD I. Restorative dentistry under general anesthesia for the exceptional child as office procedure. *Journal of Dentistry for Children*, 34:395-398, 1967.

A dental treatment program for the handicapped, CP, MR, or emotionally disturbed children is described in which general anesthesia as an office procedure is used.

HEINZ, HAROLD W. Dental Clinic. *Broadcaster*, Newsletter of the Beatrice State Home, 25(3): 3, 1969.

One in 5 children has gum disease which eventually can lead to loss of gum tissue and teeth. The best prevention is regular toothbrushing and visits to a dentist for removal of hardened calculus.

HOLLE, ROBERT L. Observations on pre-sedation. *Bulletin of the Academy of Dentistry for the Handicapped*, 2(11):4-11, 1964.

A review of drugs possible for pre-sedation prior to dentistry is given. Any other drug therapy should be considered; anesthesia is recommended if pre-sedation fails.

JACKSON, ELGIN F. Orthodontics and the retarded child. *American Journal of Orthodontics*, 53(8):596-605, 1967.

Four clinical examples are given of orthodontic treatment of the MR child. There are no exact dental methods for dealing with the MR patient, but many cases can be helped by an orthodontist willing to experiment.

JAKER, F. W., & SCHILLER, L. E. Hospital dental management of the handicapped child. *Journal of the New Jersey State Dental Society*, 33(10):423-426, 1962.

Complete dental care for the severely handicapped child is now within reach. A pilot program at the CP treatment center of West Essex and Hudson, New Jersey, utilizing new research was initiated and 1 phase of the program deals with the use of general anesthesia for the CP in a hospital and the procedures used are discussed.

JORGENSEN, NIELS B. Restorative dentistry for adult cerebral palsy patients. *Journal of Prosthetic Dentistry*, 12(2):366-368, 1962.

Spasticity, athetosis, and rigidity are the 3 basic symptoms of CP patients and the securing of adequate relaxation is the most difficult problem in dental care of these patients. Oral pre-medication, intravenous premedication and local anesthesia are described in a technique of office procedure for adult CPs.

JOYCE, C. R. B., & SWALLOW, J. N. The controlled trial in dental surgery: Premedication of handicapped children with carisoprodol. *Dental Practioner*, 15:44-47, 1964.

A study of 55 handicapped children given carisoprodol before dental treatment is described.

KAMEN, SAUL. Dental management of the mentally retarded child. *Bulletin of the New York Society of Dentistry for Children*, 18 (2):10-11, 1967.

Dental management of the exceptional child requires a total evaluation of the patient including sensory and motor handicaps, IQ, emotional behavior, and his oral status; the treatment of choice can then be made fairly readily.

KENNEDY, JOHN B., JR. Use of premedication in dental treatment for MR and handicapped patients. *Journal of Oral Surgery, Anesthesia, and Hospital Dental Service*, 19(5): 376-379, 1961.

The use of premedication to accomplish dental treatment at Porterville State Hospital, California, is described and includes the kind of drug prescribed for each behavioral group of handicapped patients.

KIRK, ROBERT T. Hospital management of the handicapped patient. A survey of current hospital dental practices and privileges. *Bulletin of the Academy of Dentistry for the Handicapped*, 2(2):1-11, 1964.

A study on dentistry for the MR and hospital equipment, privileges, and procedures concluded that too few hospitals had dental facilities for handicapped persons.

KLEISER, J. R. Psychological appraoch to MR in dental practice. *Journal of Dentistry for Children*, 28(3):199-207, 1961.

Suggestions are made to the dentist for psychological management of the MR in dental practice.

KROLL, R. G., & STONE, J. H. Rehabilitation of the difficult dental patient utilizing general anesthesia for restorative treatment. *Journal of the New Jersey Dental Society*, 33(10):427-430, 1962.

Uncooperative, fearful, and handicapped patients can be successfully treated using general anesthesia. The procedures may be done at the hospital or in the dental office or a conbination can be used. This approach helps the patient accept subsequent dental treatment as routine.

LEVITAS, T. C. A hand--for the handicapped. *Journal of the Georgia Dental Association*, 35(4):8-12, 1962.

Every effort should be made to treat handicapped patients in the office; however, general anesthesia can provide more than adequate working time without a struggle between patient and dentist.

LLOYD, CHESTER. Dentistry for the handicapped--general anesthesia. *Bulletin of the Academy of Dentistry for the Handicapped*, 2(1):12-15, 1964.

A general anesthesia is recommended in dental treatment of the severely handicapped.

LOWELL, R. J. An unusual patient management problem. *Journal of the American Dental Association*, 65:270-271, 1962. (Letter)

A 3 1/2-year-old girl with multiple congenital abnormalities was treated under general anesthesia for excessive caries formation. Thirty-nine decay surfaces were restored and no extractions were necessary.

NAISMITH, RICHARD. The dental care of handicapped children in the hospital. *Journal of Dentistry for Children*, 26(2):149-153, 1959.

The problems of dental treatment for handicapped children in the hospital fall into 2 categories: the needs of the child (as per his particular problem); and the requirements of the dentist in meeting these needs.

NEIDITSCH, H. Dental treatment of MR children under general anesthesia. *Schweizerische Monatschrift fur Zahnheilkunde*, 69:48-50, 1959.

By using general anesthesia, it is now possible for the pedodontist to treat MR children. At the Children's Hospital in Basil (Switzerland) most dental treatment is completed at 1 sitting. Methods and problems encountered are discussed.

NEVINS, MILTON. The retarded patient and the "re-creation" of his masticatory apparatus. *Recreator*, 2(5):7-8, 1966.

Problems in prosthetic dental restoration for the MR are discussed. Improved facial appearance results in improved self esteem for many MRs.

RICHARD, JEAN-PIERRE. Les Soins Dentaires (Dental care). *Nos Enfants Inadaptes*, 25(1): 11-14, 1968.

Dental care is as necessary for MR children as for normal; however, the MR must be approached with great understanding and patience. If all else fails, a general anesthesia should be used.

ROSEN, SAMUEL, & ROSENSTEIN, W. Premedication as an adjunct in the dental management of patients with severe cerebral palsy. *Journal of Oral Therapeutics and Pharmacology*, 3(3):194-202, 1966.

Thirteen children and 2 adults with CP were treated with various drug combinations in an effort to promote better dental care. Certain combinations with certain types of patients were found more advantageous than others. Drug administration methods are described and results are tabulated.

RULE, D. C., WINTER, G. B., GOLDMAN, V., & BROOKES, R. C. Restorative treatment for children under general anesthesia. The treatment of apprehensive and handicapped children as clinic out-patients. *British Dental Journal*, 123(10):480-484, 1967.

A dental treatment program for the very young MR, or handicapped children is described in which general anesthesia is utilized in an out-patient clinic. Results from 225 patients (CA 22 mos-15 yrs) are given.

SCHUSTER, L. Dental rehabilitation under intubation anesthesia in problem children. *Deutsche Zahnarztliche Zeitschrift*, 21:1194-1196, 1966.

A technique for dental treatment of MR and emotionally disturbed children using intubation general anesthesia is described.

SILVER, A. S., & SILVER, H. A. Role of general anesthesia in dentistry for the hnadicapped patient. *Dental Digest*, 69:492-493, 1963.

A specific technique for the use of general anesthesia in the handicapped patient which utilizes an operating team and Fluorthane nitrous oxide is described.

SILVERMAN, SIDNEY S. Crown and bridge, full and partial prosthesis and home dental care of the physically limited patient. *Cerebral Palsy Journal*, 26(3):12-14, 1965.

Restorative dental techniques including a case study are discussed.

TOCCHINI, JOHN J., LEVITAS, THEODORE C., REDIG, DALE F. The child patient and general anesthesia in the hospital. *Journal of Dentistry for Children*, 35(3):198-207, 1968.

The use of general anesthesia for dental treatment; the procedures and precautions to be followed are discussed.

WELLS, ANN. The forgotten three percent in the dental office--care of the mentally retarded. *Journal of the American Dental Hygiene Association*, 41(1):19-20, 1967.

Five steps are outlined in the dental care of MR patients which the dental hygienist must follow in order to build a foundation for better dental care for the EMR and the TMR. Calmness and understanding patience are essential.

DEVICES

DOVEY, K. W. Oral prosthesis for CP children. *Journal of the Canadian Dental Association*, 31(8):497-504, 1965.

Two appliances are described that may be used by CP patients--1 is a simple mouthstick and the other is a grasping mouthstick which was developed from the first.

GERTENRICH, ROGER L., & LEWIS, MARIAN J. A study of automatic and hand tooth brushing as used on retarded or handicapped patients. *Journal of Dentistry for Children*, 34(3): 145-164, 1967.

Although automatic toothbrushes cost more/unit than conventional brushes, they are an aid to attendants and parents of SMRs and are readily accepted by the children themselves.

GREEN, ALBERT, et al. Electric toothbrush as an adjunct in maintaining oral hygiene in handicapped persons. *Journal of Dentistry for Children*, 29(3):169-171, 1962.

A controlled trial on 23 CP patients with the automatic electric toothbrush showed this instrument to be a useful device in the home care regimen.

KELNER, MORRIS. The use of an electrically powered toothbrush in the home dental care of handicapped children. *Pennsylvania Dental Journal*, 28(8):3-8, 1961.

Dental care of 17 patients with CP or MR by use of an automatic toothbrush was analyzed; it was found that regular use produced favorable results in all 17 Ss.

KELVER, MORRIS. Comparative analysis of the effects of automatic and conventional toothbrushing in MRs. *Pennsylvania Dental Journal*, 30(4):102-108, 1963.

One hundred eight MRs were clinically studied by a team of dentists, a dental student, and a teacher to determine the effectiveness of the electric toothbrush. The automatic toothbrush was found to be superior to the conventional toothbrush at the 99.9% level of significance.

LEVENSON, MYRON F. A home oral hygiene device requiring no dexterity? *Ohio Dental Journal*, 38:14-15, 34-35, 1964.

A new oral hygiene device of silicone rubber lined with silicone sponge is described. The device is suitable for CP, MR, and other handicapped individuals.

LEVENSON, MYRON F. Bite if you can't brush. *American Journal of Nursing*, 66(9):2012-2013, 1966.

A device for dental care was described which allows a pateint to chew if he can't brush. Improvement in oral hygiene in most cases was noted.

LUCENTE, JOSE. Use of an electric toothbrush in severely retarded children. *Journal of Dentistry for Children*, 33(1):25-26, 1966.

Because maintenance of good oral hygiene is difficult in institutionalized MR patients, the use of the electric toothbrush by attendants is recommended as it is faster and maintains better oral hygiene than conventional methods.

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SMITH, J. F., & BLANKENSHIP, JAMES. Improving oral hygiene in handicapped children by the use of an electric toothbrush. *Journal of Dentistry for Children*, 31(3):198-203, 1964.

A study on the efficacy of conventional toothbrushing and electric brushing in handicapped children demonstrated that the electric toothbrush remarkably improved oral hygiene.

SWALLOW, J. N. Mouth appliance for handicapped person. *British Dental Journal*, 115: 31-33, 1963.

A mouth appliance is described which can be used to hold brushes or other instruments by those severely paralyzed or CP persons with some degree of head control.

ADDENDUM

(Additional references without annotations are listed below)

CHARDON-PENDARIES, E. Dental care of mentally deficient children. *Annales Odontostomat.*, 22(4):133-139, 1965.

COOPER, H. K. Some needs of handicapped persons. *Public Health and Dentistry*, 22:7-12, 1962.

Dental treatment center for the handicapped. *Journal of the Mercer Dental Society*, 17:7-8, 1963.

Dental treatment of the mentally subnormal. *Bulletin of the Academy of Dentistry for the Handicapped*, 1(1):9-13, 1963.

Dental treatment to be offered to handicapped and crippled children in the St. Louis area. *Bulletin of the Greater St. Louis Dental Society*, 35:99, 1964.

DONOGHUE, E. C. Age of teething in retarded children. *Developmental Medicine and Child Neurology*, 9(3):299-302, 1967.

FOX, A. D. To help them help themselves. *Contra Costa Dental Bulletin*, 11:11-12, 1966.

GREEN, ALBERT. Office care for the handicapped. *Bulletin of the New Jersey Society of Dentistry for Children*, 12:6-8, 1964.

HALE, M. L. The past and future of dentistry for handicapped persons. *Public Health Dentistry*, 20:13-14, 1960.

LABEH, KARIMA H. Dental arch dimensions in some Egyptian children suffering from retarded growth due to malnutrition syndrome. *Egyptian Dental Journal*, 13(2):45-52, 1967.

LEVATINO, THOMAS. Handicapped child. *Penn Dental Journal*, 67:45, 1964.

On dentistry for the handicapped. *Bulletin of the New Jersey Society of Dentistry for Children*, 12:3-5, 1964.

PRATT, A. M. Mentally retarded child and how to classify him. *Quarterly National Dental Association*, 20:99-103, 1962.

The retarded patient. *Dental Practitioner (Cincinnati)*, 3:16-17, 1965.

RICHARD, J. P. The practitioner's attitude with the MR. *Actualites Odontostomatologue*, 77:21-36, 1967.

TOTH, K. Dental caries prevalence in mentally defective children attending auxiliary school. *Fogorv Szemle*, 59(8):236-249, 1966.

TOTH, K., et al. Dental caries in oligophrenics. *Fogorv Szemle*, 59(8):260-270, 1966.

VOLKMER, LUCILE. Care of the mentally retarded child under general anaesthesia. *Chronicle of the Omaha District Dental Society*, 26:181, 1963.

WALLIN, E., et al. Study of reports of services for a dental treatment center for handicapped children. *Stomatology References in the Current Medical Literature*, 2:14, 1964.

BROAD ASPECTS OF MENTAL RETARDATION

1598 GROSSMAN, HERBERT J., ed. *Mental Retardation* (symposium). *Pediatric Clinics of North America,* 15(4):819-1046, 1968.

A review of contemporary thinking shows that MR is a prominent concern of the primary physician. Since he offers continued health supervision for the MR and his family, he represents a sustaining and supportive element in their lives and it is to him they turn for guidance and reassurance. He should conduct longitudinal observations and continually reassess the MR patient. Recent trends in the field of MR include: establishment of diagnostic referral centers; significant advances in biochemistry and cytogenetics; increased home care for the MR with the resulting increased demand for community services (outpatient diagnostic services, special schools and classes, and vocational rehabilitation facilities); utilization of operant conditioning techniques to modify the deviant behavior of the SMR; proliferation of new education techniques and special classes for the TMR and EMR; increased emphasis on adaptive ability of the MR; and a variety of municipal, state, and federal legislation which reflects society's increased willingness to assume responsibility for MR. The symposium was designed to provide the physician with information needed in dealing with the MR. The essays explore some of the current issues, thinking, and investigation in biomedical, educational, and sociobehavioral areas. (490 refs.) - *L. E. Clark.*

CONTENTS: Mental Retardation: A Demographic View (Dingman); The Physician's Role in Diagnosis and Management of the Mentally Retarded (Pearson); What Do Parents Expect From the Physician? A Resume of Recent Opinions (Zuckerberg & Snow); Chromosome Disorders in Mental Retardation: Whose Chromosomes to Count? (Schulz); Metabolic Disorders Associated With Mental Retardation (Hsia, Berman, Justice, Nadler, & O'Flynn); Genetic Counseling in Mental Retardation (Wright & Sparkes); On the Diagnosis of Syndromes in Mental Retardation (Garrard); Psychological Evaluation of the Mentally Retarded: A Review of Techniques (Warren); Emotional Problems in Mental Retardation: Utilization of Psychiatric Services (Simmons); Behavior Modification in the Mentally Retarded: Application of Operant Conditioning Principles (Bijou); Utilization of Community Services: Referral and Consultation (Fremont); Special Education for the Mentally Retarded (Johnson); Vocational Rehabilitation of the Mentally Retarded (Cohen); The Residential Care Facility: Indications for Placement (Clements); and Implications for the Future (Grossman).

1599 DINGMAN, HARVEY F. Mental retardation: A demographic view. In: Grossman, Herbert J., ed. *Mental Retardation* (symposium). *Pediatric Clinics of North America,* 15(4):825-833, 1968.

Information included in demographic data of MR varies with respect to social demands, family needs, and individual needs. Demographic rates of MR reflect processes which may be defined in terms of (1) somatic or genetic disorder, or (2) a reduced level of intellectual functioning. Society defines retardation in terms of the ability to adapt and perform specific social tasks necessary to fulfill the role expectations of the individual. Viewing MR in terms of adaptive behavior required of different age groups is an extremely useful concept. When MR is viewed as a family problem, demographic studies reveal that families make decisions regarding the MR child on the basis of the time needed to supervise the MR child, their financial status, the sex of the retardate, the needs of the other children, the physical space within the home, and their social class situation and attitude. (32 refs.) *L. E. Clark.*

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1600 GROSSMAN, HERBERT J. Implications for the future. In: Grossman, Herbert J., ed. *Mental Retardation* (symposium). *Pediatric Clinics of North America,* 15(4):1041-1046, 1968.

The shift from permanent institutional care for the MR and an increasing survival rate among MR have imposed a greater demand upon community services and society to find places for these individuals. Programs, such as Head Start, attempt to prevent the mild retardation that develops from economically and culturally impoverished homes. Retardates reaching adult age need support, training, and help in finding meaningful productive employment in trade and service occupations. Sex education, birth control, and eugenics have to be considered for those MRs capable of marriage and procreation. The older retarded adult may find foster home, cottage, or partial institutional living preferable to full-time residential placement. Research is needed in cytogenetics, biochemistry, rates of maturation, cognitive development, and self-concept. The physician's role is largely to identify the MR, initiate services for him, support the parents in decision-making, and maintain a life-long relationship with the MR and his family. (13 refs.) - *L. E. Clark.*

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1601 FARBER, BERNARD. *Mental Retardation: Its Social Context and Social Consequences.* Boston, Massachusetts, Houghton Mifflin Company, 1968, 287 p. $5.50.

The MR represent a surplus population, a necessity if the personnel selection procedures of modern industrial society are to function; however, the techniques developed by modern society for dealing with MRs have generally been inadequate and inappropriate. When population segments are isolated from the dominant public culture, MR development is facilitated and the position of MRs as outcasts is reinforced. Solutions to the MR problems will require a profound change in the structure of society. This surplus population should be integrated into society through institution of programs aimed at the effective use of resources to increase the adaptation of MRs, the restructuring of the immediate family milieu, the rearrangement of societal institutions and the manner in which they are integrated, and effecting changes in the value system of society. Personal growth should replace institutional efficiency as the major criterion for participation in the social, political, economic, and educational institutions in society. Programing for families of MRs or potential MRs should aim at providing a cultural milieu which will facilitate integration into the public culture. Data on the prevalence of MR, social factors in prevalence, the effects of labelling individuals as MR, social movements for the MR, the social organization of residential institutions, and the effects of MR on family life, the school, the community, and life in residential institutions are included and should be of interest to educators, psychologists, sociologists, and social workers. (474 refs.) - *J. K. Wyatt.*

CONTENTS: The Mentally Retarded as a Surplus Population; Deviance Versus Incompetence; General Prevalence of Mental Retardation; Variation in the Prevalence of Mental Retardation; Cultural Variations and Mental Retardation; Mental Retardation: A Problem in Social Reform; The Family; Residential Institutions; Community Relationships; and Epilogue: Past and Future.

1602 NEALE, MARIE D. Continuity and change in mental retardation in Australia. *Journal of Mental Subnormality*, 14(27):73-79, 1968.

Until World War I, Australia's treatment of the MR reflected nineteenth century British treatment with prison-like custody of the insane and the incompetent; after World War II and with exposure to technological knowledge, an awareness of social welfare created in the nation a momentum for change in the field of MR. In Australia, a high standard of medical care and a high standard of living contribute to a low incidence of retardation. In education, development has been made in the expansion of facilities to meet the special needs of the handicapped. Joint responsibility for the handicapped, involving government departments of Health, Education, and Social Welfare, private organizations, voluntary organizations, and business has had an impact upon the citizenry and experimental measures for absorbing the handicapped into the community may give leadership to the world. Acceptance by the communities is noted with many MRs remaining at home. Special schools and special classes within normal schools are available. Problems of securing trained teachers vary from state to state and promotion for the teacher who chooses to stay in the special field is not available. (7 refs.) - *M. L. Wiltshire.*

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1603 SMITH, JAMES P. Care of the mentally subnormal in Scandinavia. *Nursing Mirror*, 127(2):27-29, 1968.

A nurse's tour of Scandinavian institutions for the mentally subnormal revealed wide variations in administrative policy, physical plants, standards of care, staff attitudes, and extended services. Stockholm's locally administered hospitals offer excellent physical facilities, sheltered workshops, day centers, vocational training, community placement, and good physiotherapy and occupational therapy departments despite a severe nursing staff shortage. A hospital in Rinnekoti, Finland, which is administered by a voluntary organization and subsidized by the state, is handicapped by a 1920 plant, but has a dedicated staff, youth organizations, schools, workshops, orchestras, and good "communication" therapy. An institution in Denmark, directly supervised by the state, houses "feeble-minded" criminals and MR patients in a primitive plant, and locked doors, fenced recreation areas, and staff apathy contribute to an "institution feeling." (No refs.) *C. Rowan.*

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1604 MARCHAND, JEAN. L'arriere mental a sa place sur le marche du travail (The place of the mentally retarded in the labor market). *Mental Retardation (Canadian ARC)*, 17(3-4):8-10, 1967-68.

The admission of the MR into Canada, where the labor market has openings and where vocational training facilities exist, is discussed. Entry should not be refused to a retarded child and his family when the well-being and care of the child are assured. Retarded children seeking to join their parents should also be allowed to enter if their support will be provided. (No refs.) *M. G. Conant.*

No address

1605 DIVISION OF MENTAL RETARDATION. *Atlas of Mental Retardation Syndromes: Visual Diagnosis of Facies and Physical Findings.* Gellis, Sydney S., & Feingold, Murray. U. S. Health, Education, and Welfare Department, Social and Rehabilitation Service, Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, 1968, 188 p. $5.50.

The monographs in this atlas are composed of representative photographs of the physical manifestations of each syndrome, descriptions of major diagnostic features, MR implications, physical characteristics, genetic background, and treatment possibilities. MR is a specific factor in 60 of the disorders, and although MR is not necessarily a factor in the other 22 disorders, they are included here because they are often mistaken for MR, either because of deafness-related language disability is not identified, or because facial characteristics suggest MR. This book should be of interest to physicians and to other professional persons who work with MR and/or handicapped children. (279 refs.) *J. K. Wyatt.*

1606 DRILLIEN, C. M. Classification of newborn infants by weight and gestation. *Developmental Medicine and Child Neurology,* 10(5):667-670, 1968. (Annotation)

Intrauterine growth, gestational age, and birth-weight should be considered in classification of newborn infants for purposes of demographic population studies, determination of risk factors, research into causes and prevention of low birth-weight and as a basis for subsequent investigations. Proposals for standard terms for classification made by the American Academy of Pediatrics Committee on Fetus and Newborn include: birth-weight groupings of >2,500 gm and <2,500 gm (with the latter in increments of 250 gm); gestational age expressed as completed weeks rather than to the nearest week and categorized as pre-term, term, and post-term; differentiation of intrauterine growth retardation from pre-term infants of appropriate birth-weight. A proposed classification of newborns by percentile ranking on their intrauterine growth graph and gestational age was not found to give meaningful comparisons between infants of similar birth-weights and different gestational age, but can be made more useful by relating it to other contingencies such as neonatal mortality risk, frequency of hypoglycemia, risk of developmental malformation or neurological impairment. Agreement has not been reached on standard classification nor on the relative importance and interrelationships of the various types of accumulated data. (11 refs.) - *E. F. MacGregor.*

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17 Hatton Place
Edinburgh 9, Scotland

1607 POLK, LEWIS D. No more preemies? *Clinical Pediatrics,* 7(5):247-249, 1968.

The need for a practical classification method for newborns who are at increased risk of mortality is discussed. There are various ways of relating gestational age and birth-weight, but none have the simplicity of operation and provision of useful information that the old system of groupings by birth-weight alone had. Other factors besides birth-weight sometimes influence individual cases (physical findings, neurological reflexes) and it is suggested that each group concerned with this problem select a classification system and apply it to their own situation and that the results obtained be analyzed. (12 refs.) - *M. G. Conant.*

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1608 MACKIE, ROMAINE P. Functional handicaps among school children due to cultural or economic deprivation. (Paper presented at the First Congress of the International Association for the Scientific Study of Mental Deficiency, Montepellier, France, September 19, 1967.) *Journal of Rehabilitation in Asia,* 9(4):16-18, 1968.

Some MR and handicapped children are erroneously classified as such due to environmental and cultural backgrounds. Recognizing this, the United States Congress, in 1965, enacted Title I of the Elementary and Secondary Education Act based on the belief that a child's scholastic achievement is affected by his environment, which provided over 1 billion dollars for kindergarten, preschool, and special programs for educationally and culturally deprived children. Two important issues require further investigation and action: the possibility that a considerable number of MRs are functioning as handicapped, but whose handicap originated with, is nurtured by, and in reality, is their environment; and the need for school administrators to facilitate curricula changes to accommodate functionally MR children who are products of their environments. (14 refs.) - *J. P. West.*

Division of Compensatory Education
United States Office of Education
Washington, D. C.

1609 REHABILITATION SERVICES ADMINISTRATION. *Design for All Americans: A Report of the National Commission on Architectural Barriers to Rehabilitation of the Handicapped.* (Social and Rehabilitation Service.) Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, 1967, 54 p. $0.50.

To assure the construction of useable facilities for all people, the National Commission on Architectural Barriers to Rehabilitation

of the Handicapped recommends that (1) the federal government enact legislation to set standards for the buildings it leases, owns, or finances; (2) the Department of Health, Education, and Welfare assume responsibility for the establishment, promulgation, and enforcement of accessibility and use standards for government buildings; and (3) the Department of Health, Education, and Welfare be authorized, in cooperation with other organizations, to undertake, sponsor, and/or help finance research, demonstration, training, and educational projects. The handicapped continue to be physically barred from places because not enough people are aware of the problem, voluntary efforts have not achieved change, some state legislative action is vague and weak, local action has been minimal, the serious problem of transportation has been neglected, the standard specifications issued by the USA Standards Institute is incomplete, and the data needed for serious study of the problems of architectural barriers has never been collected. The accessibility standards of the USA Standards Institute should be expanded to include specifications for transportation systems and residential housing. This report presents a complete statement of the Commission's work and recommendations since 1966 and should be of interest to legislators, architects, and all others involved in the planning of public or private buildings. (65 refs.) - *J. K. Wyatt.*

1610 GUNZBURG, ANNA L. Architecture and mental subnormality. II. Sensory experiences in the architecture for the mentally subnormal child. *Journal of Mental Subnormality,* 14(2):57-58, 1968.

An MR child's environment should be designed to offer a variety of natural learning experiences and not to provide for physical needs only. Sensory stimulation with which a child can see cause and effect relationships, experience texture and color, and incorporate these experiences into his education, must be provided by the architect. (No refs.) *B. Parker.*

Tanworth-in-Arden
Warwickshire, England

1611 LAPUH, MILIVOJ. Material standards in the architecture for the mentally subnormal. *Journal of Mental Subnormality,* 14 (2):59-61, 1968.

In Yugoslavia the question has arisen as to whether some of the new luxurious "purpose built" edifices for the MR represent overcompensation for past neglect. The new buildings were not designed for the MR as much as they were constructed to be architecturally perfect; further conclusions suggest that buildings do not have to be expensive to solve problems, support therapeutic endeavors, exert positive influences, and satisfy requirements for changing needs in MR. Finally, existing buildings can be better adapted, often without major changes, to create the proper psychological environment than many new buildings designed to specific standards. (No refs.) - *B. Parker.*

No address

1612 GUTHRIE, D. I. "Barriers to fulfillment." *Rehabilitation in Australia,* 5(3):11-17, 1968.

Committees on Architectural Standards and Design of the Australian Council for Rehabilitation of Disabled have been formed in the various states because of problems concerning architectural barriers which prevent the integration of the handicapped into the working world. America and Britain both have standard specifications to make buildings accessible to the handicapped and, in Australia, a code is in the process of being revised. However, all recommendations for improvement will fail unless the public is made aware of the needs of the disabled and of the fact that disabled persons would be able to lead useful lives, enjoy gainful employment, and participate in recreational and cultural events if more concern were given to eliminating barriers such as steps, too narrow doors, and curbs. Recommendations as to curbs, handrails, approaches, and entrance doors are described and diagrams are included to illustrate these ideas. The deaf, hard-of-hearing, and blind are also considered in the full code. (7 refs.) - *B. Parker.*

No address

1613 *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967, 75 p. (Available from National Association for Retarded Children, New York, New York.)

The architect should be a member of an interdisciplinary team which designs facilities for the mentally and physically handicapped which compensate for the handicaps and allow

maximum growth and development. Professionals from the fields of architecture, MR, social work, physical medicine, vocational rehabilitation, and special education discuss problems involved in overcoming architectural barriers, and concluded that architects, engineers, acoustics experts, artists, special education experts, and other members of the various professional areas involved in the treatment of the residents should be included in the planning of new buildings. The architect must understand the philosophy of the care and treatment of the retarded and/or handicapped and should personally familiarize himself with their needs. Architectural barriers must not impede the resident's growth, as it has in the past. The residents' special needs and deficiencies can be reduced through appropriate design and manipulation of the environment. Detailed plans and specific recommendations for the design of facilities for the retarded, blind, deaf, nonambulatory, and physically handicapped are presented. Flexibility in the function of the building must be built-in if it is to be adaptable to changes in treatment techniques. The ideas and specific recommendations presented at this workshop should be of interest to architects, institutional administrators, and other health facility personnel involved in the planning of new facilities for the blind, deaf, retarded, or crippled. (19 refs.) - *A. W. Jordan.*

1614 PRICE, ROBERT B. Environmental design. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 18-20. (Available from National Association for Retarded Children, New York, New York.)

The functional and architectural success of any building requires a well defined program of goals and much planning by a team including an architect, structural engineer, mechanical engineer, electrical engineer, landscape architect, and artist. A well designed school provides an environment which is an important tool in learning; which simplifies the job of teaching; and which creates a feeling of pride in all involved. A pleasant environment is essential and does not necessarily cost more than a "janitorial design." The beauty in a building designed for children's use may provide their first experience in a pleasant environment. (No refs.)
A. W. Jordan.

1615 HELSEL, ELSIE D. Removing architectural barriers is not enough. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967, p. 21-27. (Available from National Association for Retarded Children, New York, New York.)

A few days on the wards of a residential institution to determine the residents' needs as developing individuals, as well as their special needs due to handicaps, is a necessary experience for the architect designing facilities for the handicapped. The nonambulatory physically handicapped resident can learn to care for some of his own needs if he is not denied this right to learn by architectural barriers. Most so-called "bedfast" patients can be out of bed and dressed most of the time; however, this requires planning for the storage of bulky equipment at bedside. Change in the concepts of caring for severely involved patients must be reflected in the design. Dining areas must provide space for special feeding equipment. Specially tailored toilets with body and foot supports are necessary. Showers, sinks, and mirrors can be designed to facilitate use by wheelchair residents. (No refs.)
A. W. Jordan.

1616 GORDON, HELEN L. Pre-school program and facilities. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 28-31. (Available from National Association for Retarded Children, New York, New York.)

Classrooms for the preschool retarded must have sufficient space and appropriate design for structured and unstructured motor, tactile, visual, and auditory learning experiences. Desirable characteristics of such facilities include: 35 square feet/child; sound deadening acoustics; windows low enough for a child to see outside; outdoor play space and equipment with a direct connection between outside and inside; bathrooms adjacent to the play area, with sink and mirror at the child's level; ample cupboard and storage space; a kitchen; nurses' station and isolation area for the sick; and 1-way mirror with full view of the classroom. (No refs.)
A. W. Jordan.

1617 PALMER, DENSLEY H. Young adult training and re-training centers. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 32-38. (Available from National Association for Retarded Children, New York.)

Facilities for vocational evaluation and training of retardates should provide space for observation of behavior and behavioral modification; be physically adaptable to change in training techniques; and be designed to compensate for the intellectual deficits of the trainees. Vocational evaluation includes observation of a trainee at a work-like task, followed by the trainer's determination of behaviors which need to be encouraged and those which need to be eliminated. The physical features of the center must allow for 1-way mirrors and closed circuit television for such observation. Since each trainee's program will be unique, the traffic through the facility will vary in volume and frequency. The design should be adaptable to a variety of training techniques such as teaching machines and group training and should be flexible enough to allow for the introduction of new techniques in the future. (No refs.) - *A. W. Jordan.*

1618 MAIER, HENRY W. Designing residential living units for persons with mental retardation. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 39-41. (Available from National Association for Retarded Children, New York, New York.)

To allow for each resident's maximum growth within his limitations, small, self-contained areas will be necessary for some; whereas, other residents need larger living areas where more varied social experiences will be available. Although the present trend is toward smaller and smaller units, the construction of new facilities should permit easy alteration of the subdivisions within the building to accompany changes in the philosophy of caring for the retarded. Teamwork does not end following the planning of the facility. A multi-disciplinary approach to treatment should include housing of physicians, social workers, attendants, teachers, and recreation workers in the residents' living units. (No refs.) - *A. W. Jordan.*

1619 KURREN, OSCAR. Living units for the mild and moderate retarded. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 42-44. (Available from National Association for Retarded Children, New York, New York.)

The architect must become personally involved in the daily activities of patients and understand the philosophy of the professionals; be oriented toward the present and not misled by outdated biases of the staff; and avoid furthering compartmentalization of the various professional services. He should be involved early in the planning of the facility and, he can serve as a unifying element as he arrives at a consensus of the values of the professional staff. (No refs.) - *A. W. Jordan.*

1620 JOHNSON, WARREN. Some considerations in designing facilities for the deaf. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 45-46. (Available from National Association for Retarded Children, New York, New York.)

In the design and construction of facilities for the deaf, the level of sound absorption in the classroom, the reverberation time of sound waves, the amount of external and internal noise, and the quality of lighting must be thoroughly studied. The pattern of sound heard by individuals with hearing aids is affected by the size and shape of the room and the type of furnishings and materials used in construction. The use of sound absorbing materials and special treatment of the walls and ceilings can effectively control reverberation so that reverberation time is reduced to 1/2 second. The masking of speech by external airborne noises can be reduced by the selection of a quiet site for the facility and the construction of tight fitting doors and windows. The control of impact noises within the building can be accomplished by discontinuous construction of walls and floors. The architect is urged to consult with audiologists, acoustical specialists, and deaf education personnel to facilitate the planning of such facilities. (19 refs.) - *A. W. Jordan.*

1621 WOODCOCK, CHARLES. Facilities for the blind retarded. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 57-59. (Available from National Association for Retarded Children, New York, New York.)

Any discussion of the physical plant must be preceded by an understanding of the goals, philosophy, and curriculum of the school. The goals of the Oregon State School for the Blind are: education of the students; interpretation of visual impairments to the public and their implications for community adjustment; development of staff effectiveness; research; and contribution to community welfare. The on-going program is continually evaluated. Where buildings are already in existence, one must learn to modify the existing structure to meet new needs. All building must be done to enhance the program. (No refs.)
A. W. Jordan.

1622 FALICK, JAMES. Joint mental health/mental retardation facilities. In: *Architectural Workshop:* Conference Report of the Architectural Institute held at Portland, Oregon, October 16-17, 1967. p. 60-66. (Available from National Association for Retarded Children, New York, New York.)

An appropriate site with visibility can be selected only after a team of health facility workers and architects have: defined the goals and functions of services; determined the staff's desire for flexibility, centralization or decentralization of services, and compartmentalization or integration of professional areas; and stated the problem in terms of needs and costs. Free flow of communication between team members is essential. Each community will have its own solution to the amount of physical and functional integration of the mental health and mental retardation facilities. (No refs.)
A. W. Jordan.

1623 *Functionally Designed Clothing and Aids for Chronically Ill and Disabled:* A seminar held at Cleveland, Ohio, November 9-10, 1966, 18 p. (Available from Vocational Guidance and Rehabilitation Services, 2239 East 55th Street, Cleveland, Ohio.)

Chronically ill and disabled persons such as the ambulatory handicapped, wheelchair bound, birth defect disabled, MR, employed, elderly, and handicapped homemaker have a special need for clothing designed to minimize physical disability, to permit increased mobility and ease of movement, and to increase comfort, self assurance, and family acceptance. Gaps which exist between special clothing needs and resources include: an apathy about the rehabilitation value of specially designed clothing; a lack of adequate technical and professional training; and a need for research, new design and production development, promotion, and examination of the psychological and social impact of special clothing on handicapped persons. In order to close these gaps and emphasize the real contribution which special clothing design can make to the rehabilitation field, it is recommended: that a central information center serve as a clearing house for materials on special clothing and provide an annual forum; that special clothing training courses to educate students and professionals be included in government sponsored training programs; that continued research in special clothing be supported; that clothing centers receive a government subsidy to develop new clothing units; that a professional group of creative designers of special clothing be recruited and trained; that adequate coverage of the handicapped be insured by establishing facilities for the production and distribution of special clothing at key points throughout the country; and that new clothing information be promoted. (31 refs.)
J. K. Wyatt.

1624 SPASTICS SOCIETY MEDICAL EDUCATION AND INFORMATION UNIT. *Bibliography of Developmental Medicine and Child Neurology: Books and Articles Received in 1967.* London, England, William Heinemann Medical Books, 102 p. $1.00.

An unannotated bibliography of books and articles received by the Spastics Society in 1967 including the areas of genetics, embryology, neonates, prematurity, Down's syndrome, epilepsy, and cerebral palsy is given. Each citation is given only once; however, each article is indexed in depth and an author index is included. This bibliography should be of interest to all persons in the field of MR, epilepsy, and related areas. (1,392 refs.) - *M. Droseman.*

MEDICINE AND ALLIED SCIENCES

Diagnosis (General)

1625 GARRARD, STERLING D. On the diagnosis of syndromes in mental retardation. In: Grossman, Herbert J., ed. *Mental Retardation.* (symposium). *Pediatric Clinics of North America,* 15(4):925-942, 1968.

The selection criteria for specific diagnostic work-up and indications for study of MR syndromes are presented. MR syndromes are classified as: cytogenetic; enzymatic deficiencies; and gross morphological abnormalities. Mongolism has the highest incidence in the general populace of any MR syndrome and syndromes associated with autosomal aneuploidy and complete or partial monosomy are frequent in those Ss with low IQs and/or malformations. Cytogenetic study is indicated when: IQ is less than 50-54; 3 or more anomalies in a nonmendelian pattern are found; 2 or more malformations occur with abnormal dermatoglyphics; or a buccal smear for sex chromatin pattern is abnormal. PKU has a reported incidence of 1:25,000 MRs and their families; however, a greater incidence results when biochemical variants having no predisposition toward MR are included. Other enzymatic deficiencies are rare and mass screening on a nonselective basis is not very productive. Indications for metabolic studies are: a low IQ; an affected sib or relative; physical signs of the suspected syndrome; and progression or change in neurological signs. Inspection may reveal a typical phenotype of either a mendelian or nonmendelian syndrome. The physician diagnosing the syndrome can: sometimes ameliorate the disease by diet; counsel more effectively; and satisfy his academic interests. The pediatrician must assess the MRs' current cognitive and psychosocial functioning and factors inhibiting behavioral growth must also be considered in prescribing individual programs. (83 refs.) *L. E. Clark.*

State University of New York
750 East Adams Street
Syracuse, New York

1626 U. S. HEALTH, EDUCATION, AND WELFARE DEPARTMENT. *A Developmental Approach to Casefinding: With Special Reference to Cerebral Palsy, Mental Retardation, and Related Disorders.* Hayes, Una. (Children's Bureau Publication No. 449-1967), Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, 1967, 85 p. $1.25.

The early discharge of infants from the hospital following delivery has increased the responsibility of nurses in assisting in the early identification of dysfunction, disease and anomalies both before and after hospital discharge. Early casefinding is extremely important because appropriate diagnostic and management programs cannot be undertaken until deviant development has been identified. Factors which place the nursing profession in a strategic position to foster earlier recognition of the infant at risk include: new knowledge about abnormalities and how to look for them; an increased emphasis on growth and development in nursing education programs; the expanded role of nurses; and the nature of nursing services. Infant appraisal should include evaluation of the basic neurological reflex patterns and the maturation of the CNS. This casefinding guide presents criteria for determining whether an index of suspicion exists and whether medical assistance should be sought for each segment of appraisal. The Guide to Normal Milestones of Development is a new "wheel" device which provides a quick recall of the major developmental milestones and helps to focus attention on those factors which may require medical referral. This publication should be of interest to nurses, physicians, and members of the health professions concerned with maternal and child health services and with assisting parents in developing a better understanding of the growth and development of their children. (90 refs.) - *J. K. Wyatt.*

CONTENTS: Perinatal Morbidity; Major Components of Appraisal of Infants and Young Children; and Procedures and Devices for Appraisal.

1627 SHIRKEY, HARRY C., ed. *Pediatric Therapy.* Third edition. St. Louis, Missouri, C. V. Mosby, 1968, 1,294 p. $25.00.

Precise diagnosis and emphasis on medical, dental, surgical, and psychiatric treatment for childhood illnesses are presented for the physician. Symptomatic or supportive therapy, which is given when additional specific therapy is needed or when no specific agents are available, is described for most of the illnesses covered. The basic principles of drug treatment (classes of therapy, the placebo, drug administration and dosage, and choice of drug), adverse drug reactions, and general therapy are discussed. Specialized and highly technical procedures involved in treatment are included in the concept of complete care of the child, but are not described in detail. The importance of treating the symptom, either because no specific therapy is available or because a precise diagnosis was not made, is stressed. A table of drugs, listing dosage, routes, and forms in which it is supplied, includes the drugs mentioned throughout the book. This reference should be useful for physicians, pediatricians, pharmacists, and nurses. (1,144 refs.) - *M. G. Conant.*

CONTENTS: Drug treatment-fundamentals; Adverse drug reactions; General therapy; Treatment of symptoms; The newborn infant; Infectious diseases; Pediatric psychiatry; Digestive diseases; Respiratory system; Cardiovascular system; Collagen diseases; Diseases of blood; Disorders of lymphatic system; Disorders of genitourinary system; Metabolic disorders; Skin disorders; Allergic disorders; Eye disorders; Disorders of the nervous system; Tumors; Pediatric surgery; and Table of drugs.

1628 WOOLF, L. I. Paediatric screening for genetically determined metabolic diseases. *Proceedings of the Royal Society of Medicine,* 61(18):766-767, 1968.

The mental and neurological deterioration associated with phenylketonuria and several other treatable metabolic diseases can be prevented with early therapy; however, the problem of mass screening for detection has yet to be solved. Phenylketonuria may be detected by urine or blood tests, but the inability to efficiently collect the samples and process them often prevents detection. In addition, phenylketonuria may take a considerable amount of time to develop in the newborn before positive tests are obtainable, so the problem of timing the tests is important. Two presently available chromatographic tests soon may be useful for multiple screening. (16 refs.) - *M. T. Lender.*

Faculty of Medicine
University of British Columbia
Vancouver 8, Canada

1629 GORDON, R. R. The indications for chromosome analysis as an aid to the clinician. *Clinical Pediatrics*, 7(2):83-87, 1968.

Chromosome analysis is useful not only for research but for clinical diagnosis and prognosis for both patient and family. The use of chromosomal analysis can confirm many syndromes that are associated with MR. White blood cells are most frequently used for analysis as they grow readily in tissue culture media. Buccal mucosa smears can be most helpful in cases of ambiguous sex characteristics. Chromosomal analysis of both parents of a mongoloid child is desirable when the mother is 35 years or less at time of conception and a translocation type of mongolism is found in the child in order to counsel the family on the possibility of mongolism recurring during subsequent pregnancies. Buccal mucosa smears of mothers are adequate to diagnose an XXX chromosome abnormality which can be passed on to a daughter as a similar condition or to a son as Klinefelter's syndrome. (6 refs.) - *W. Asher.*

Northern General Hospital
Sheffield 5, England

1630 Spotting flaws in genes at birth. *Medical World News*, 9(47):23, 1968.

The finding of 18 infants with gross chromosomal abnormalities out of 4,000 tested not only confirmed previous estimates of a national incidence of 1/220, but made possible early therapy for 9 children with somatic cell abnormalities and psychological follow-up for 9 having sex chromosome abnormalities; 14 of the 18 appeared normal at birth. Further study is aimed at computerization of characteristics of normal and abnormal chromosomes and the possibility of determining chromosomal aberrations before birth with a view to possible future decisions on the termination of "high-risk" pregnancies. (No refs.) - *E. F. MacGregor.*

1631 GIBBS, RICHARD C. Fundamentals of dermatoglyphs. *Archives of Dermatology*, 96(6):721-725, 1967.

Dermatoglyphs are distinctive furrows in the skin which can be recorded on paper with several types of ink, and which can be used as an aid in the diagnosis of various diseases with characteristic patterns. Palmar dermatoglyphs include flexion creases, tension creases, and sulci. The large flexion creases on the palm may fuse into a single line and this is termed a simian crease which is found in some genetic disorders. Tension creases are caused by occupation or manual activity. Patterns consisting of sulci and ridges are found on the fingers and palm of the hand and are classified as ulnar loops, radial loops, whorls, and arches. A triradius, a Y-shaped junction of 3 ridges found in association with whorls and loops, can be classified by its location and *atd* angle. The number of ridges in a print and the total number on all fingers is genetically determined and averages 145 in males and 127 in females. Dermatoglyphs are characteristic and can aid in the diagnosis of mongolism, trisomy D and E, *Cri-du-chat*, additional Y chromosomes, Klinefelter's syndrome, psoriasis, Von Recklinghausen's disease, pseudohypoparathyroidism, Wilson's disease, schizophrenia, and congenital heart disease. (24 refs.) - *M. T. Lender.*

15 Park Avenue
New York, New York 10016

1632 DE BELLEFEUILLE, PAUL. The Paedametron: A human growth slide-rule. *Developmental Medicine and Child Neurology*, 10(6): 750-753, 1968.

The Paedametron is a pocket-size slide-rule with scales for the related parameters of age (24 wks to 16-18 yrs) including height, weight, surface area, cranial perimeter, and pelvic breadth in males and females and a cursor with vertical lines indicating the mean and ±1 to 3 standard deviations. The device ignores variation due to racial or familial factors, but does represent easily read measurements for all stages of development. (10 refs.) - *M. G. Conant.*

Department of Paediatrics
University of Ottawa
Ottawa 2, Canada

1633 CULLINAN, T. R. Children at risk. *Lancet*, 2(7575):966-967, 1968.

Criticisms have been expressed about infant at-risk registers, most of which use criteria for inclusion which necessitates general, impersonal, and inaccurate methods; however, a method used by a staff of 3 doctors, 2 health visitors, a midwife, and a district nurse for 2 years includes not only infants displaying early signs of abnormal development,

but more specifically, those intuitively suspected of abnormalities by parent and/or physician. It also includes children with asthma, congenital heart lesions, and other congenital abnormalities. Children in this category and children who have passed through the at-risk period are placed on a probationary list and re-evaluated periodically. Progress reports of children on the main list are presented at meetings every 1 to 2 months. Nine hundred children (CA 0-5) are included in the practice, and 155 are on either the primary or probationary at-risk register. The size of the practice allows individual attention to be given each case, and a close check is maintained by the original staff who recommended enlistment on the at-risk register. (3 refs.) - *J. P. West.*

Ashford, Kent
England

1634 ROGERS, MICHAEL G. H. Risk registers and early detection of handicaps. *Developmental Medicine and Child Neurology,* 10(5):651-661, 1968.

The use of risk registers has led to an increased awareness of the need for early detection methods in developmental medicine on the part of local health personnel; however, the inherent problems and poor practical results have become increasingly apparent and the need for a new approach to early detection of handicapped children is needed. Risk registers have either been too small and have missed many children or they have been so large as to be impractical to work with; the concept assumes a distribution of handicapping conditions which by and large does not actually exist. An alternate approach would be the inspection of all children plus the selection of small high risk groups for special surveillance. Whole population screening has worked in the cases of PKU and congenital hip disorder and could be carried out by an already existing simple yet comprehensive developmental examination. The special high-risk group would include those with a history of maternal rubella, low birthweight, severe perinatal hypoxia, birth injury, neonatal hyperbilirubinemia, and "classical" neonatal neurological syndromes. The risk registers should never be regarded as an alternate to the developmental examination of all infants, but should be considered as a supplement. (27 refs.) - *K. Drossman.*

Department of Health and Social Services
Friar Street
Reading, Berkshire, England

Prevention and Etiology (General)

1635 SMITH, BERT KRUGER. *No Language But a Cry.* Boston, Massachusetts, Beacon Press, 1964, 170 p. $5.00.

The provision of adequate treatment and the prevention of emotional disturbance in children will require national legislation, research, additional trained personnel, and more residential treatment centers. Although studies conducted in several states indicate that approximately 1 child in 2,000 requires intensive, full-time treatment, 26 states in the United States do not provide any facilities for mentally ill children. Many other states have a small number of private treatment centers which have 6 to 15 month long waiting lists and fees in the $350 to $700/month range. The disorders of mentally ill children are frequently confused with MR; however, MR children do not have the scattering of skills and irregularity of development manifested by disturbed children. To provide the best possible treatment for children, a diagnostic distinction between actual and functional MR must be made. Trained teams of specialists must be available to work with emotionally disturbed children. These teams are composed of psychiatrists, clinical psychologists, psychiatric social workers, physicians, and other community personnel. The spectrum of services possible for mentally ill children include full-time home care, special educational programs in regular schools, special schools, day-care centers, homemaker services, church and club programs, re-education projects, children's units in state hospitals, foster home care, and residential treatment. This book should be of interest to parents of emotionally disturbed children, psychiatrists, psychologists, and educators. (79 refs.) - *J. K. Wyatt.*

CONTENTS: Who Are the Children? Where Can Parents Go for Help? The Mental Health Team--How Does It Function? Spectrum of Services; What Is a Residential Treatment Center? Visits to Three Facilities; and What Can Be Done?

1636 GOLD, ARNOLD P., & CARTER, SIDNEY. Pediatric neurology. In: Shirkey, Harry C., ed. *Pediatric Therapy*. Third edition. St. Louis, Missouri, C. V. Mosby, Chapter 105, p. 921-938.

Therapeutic principles to be observed in the treatment of a variety of neurological disturbances in children are discussed. Among the convulsive disorders, febrile, grand mal, focal, psychomotor, and epileptic equivalents are generally treated with phenobarbital; petit mal with ethosuximide; infantile spasms with corticotropin; and akinetic and myoclonic seizures with a ketogenic diet which is described in detail. Amphetamines, phenothiazines, and diphenylmethane derivatives are effective in the treatment of brain-damaged children. Drug therapy is not universally effective in polyneuritis and intracranial hemorrhage; arterial thromboses and emboli are treated symptomatically; and venous and dual sinus thromboses are managed by fluids, antibiotics, anticonvulsants, and anticoagulants. Diphenhydramine hydrochloride is often effective in drug-induced extrapyramidal dysfunction, while therapy in Wilson's disease is aimed at minimization of copper absorption and promotion of urinary copper excretion. Anticholinesterase drugs are useful in the treatment of myasthenia gravis, surgery is often indicated for pseudotumor cerebri, and no curative program is available for progressive degenerative diseases. Various birth injuries (cephalhematoma, intracranial hemorrhage, subdural hematoma, skull fractures, peripheral nerve injuries, facial palsy, and spinal cord injuries) are not amenable to drug therapy and general principles to be followed with head injuries are noted. (3 refs.) - *M. G. Conant.*

1637 TORPIN, RICHARD. *Fetal Malformations Caused by Amnion Rupture during Gestation.* Springfield, Illinois, Charles C. Thomas, 1968, 165 p. $11.50.

Amnion rupture during gestation may lead to fetal malformations which range from constrictions with partial or complete amputation of digits or limbs, to strangulation of the umbilical cord and sudden fetal death. The 5 layered amnion joins the skin of the fetus at the umbilicus and when it ruptures, once in every 5,000 to 15,000 human pregnancies, it may slip off the chorion and detach mesoblastic fibrous strings from the chorion. Constriction bands caused by the entwining of the fragmented or rolled up amnion or by 1 or more fibrous strands can be associated with club feet and fetal facial fissures. The relatively high fetal mortality rate associated with amnion rupture may be due to the tendency of the fetus to swallow a free ending strand of the detached amnion. The etiology of amnion rupture is unknown; however, trauma to the pregnant uterus during gestation appears to be the most likely cause. This condition does not appear in closely related individuals and parents and relatives of an afflicted infant can be reassured that these lesions are not hereditary. In cases of severe malformation or when the placenta or membranes are attached to the fetal head, the prognosis is poor and death occurs quickly. Therapy in the form of the immediate surgical removal of a constriction producing edema in a distal part may save an arm or a leg. Orthopedic methods may be used to treat deformed members such as club feet. This book should be of interest to medical specialists in the fields of obstetrics, pediatrics, pathology, orthopedics, embryology, and anatomy. (494 refs.) - *J. K. Wyatt.*

CONTENTS: Amnion Rupture in Pregnancy (Hypothetical Consequences); Genetic Fetal Malformations; Etiological Classification of Fetal Malformations (Genetic; Teratogenic; Anomalous Environment; and Ainhum); The Amnion (Development and Anatomy; Amnion Rupture; Consequences of Early Amnion Rupture; and Short Strings and Long Strings); Associated Fetal Defects; Ligation of the Umbilical Cord by Strands (Sex of Afflicted Infant); Amputated Parts Recovered; Elephantiasis of the Distal Portion; Transplantation of Fetal Parts; The Placenta Attached to the Fetal Head; Amniotic Fluid Associated with Amnion Rupture; Clubfoot and Clubhand (Syndactylism; and Gangrene of Newborn Extremities); Congenital Skin Lesions; Trauma to the Mother's Abdomen During Gestation; Fetal Constriction Caused by the Umbilical Cord; Traumatic Damage to the Fetus; Maternal Impressions; Placenta and Membrane Study Method; Extramembranous Pregnancy; Case Histories: Personal Observation; and Therapy and Management.

Etiologic Groupings

Infection, Intoxication, and Hemolytic Disorders

1638 REMINGTON, JACK S., MILLER, MICHAEL J., & BROWNLEE, I. IgM antibodies in acute toxoplasmosis: 1. Diagnostic significance in congenital cases and a method for their rapid demonstration. *Pediatrics*, 41(6):1082-1091, 1968.

IgM-toxoplasma antibodies were determined in 18 cases of congenital toxoplasmosis by use of IgM-fluorescent antibody tests. This test is easily learned and can be performed in 2 hours. Serological infection diagnosis in newborns has been complicated by the presence of large amounts of maternal antibodies, and in normal populations there is a high degree of toxoplasma antibodies which makes the congenital diagnosis of toxoplasmosis extremely difficult. The demonstration of IgM antibodies appears at this point to be diagnostic of congenital toxoplasmosis, and the fluorescent-antibody test should aid in those cases where there is an absence of "classical" signs; thus enabling the physician to treat such cases early enough to prevent irreparable organ damage. (24 refs.) - *K. Drosman.*

860 Bryant Street
Palo Alto, California 94301

1639 KRECH, U., JUNG, M., BARLOCHER, K., & SEGE, L. Investigation on the incidence of intrauterine cytomegalovirus infections. *German Medical Monthly*, 13(4):184-190, 1968.

This publication presents results on virus isolation and serological investigation in children with cytomegalic inclusion disease appearing predominantly in the region of eastern Switzerland. The cytomegalovirus was recovered from 7 of 38 children under the age of 1 year, and from 4 of 16 older children with clinical symptoms of the disease. The virus was also isolated from 7 older children with cerebral lesions since birth, and from 2 of their contacts living in the same institution. Negative results were obtained from 50 healthy newborns, but 3 of their mothers excreted cytomegaloviruses at the time of delivery. In 1 of these newborns, the virus could be recovered at the age of 5 months when this child developed gastroenteritis. According to the analyses of questionnaires, there were 6 cases of generalized cytomegalic inclusion disease in 2,386 children, which were born during the study period. Serological investigations have also shown, that complement-fixing antibody titers against the cytomegalovirus could be found in 40% of adults, and in 70% of pregnant women as indicated by examination of cord blood samples. (22 refs.) *Journal summary.*

Bakteriologisches Institut des Kantons
St. Gallen
Frohbergstrasse 3
CH 9000 St. Gallen, Switzerland

1640 HERRELL, WALLACE E. Postperfusion syndrome caused by cytomegalovirus infection. *Clinical Medicine*, 75(8):15-16, 1968. (Editorial)

The postperfusion febrile disease syndrome, which may occur in the fourth postoperative week after cardiac surgery, may be caused by a cytomegalovirus. The observation of 200 postperfusion patients revealed that 10 patients had developed the syndrome. Preoperative and postoperative antibody and virus isolation studies showed conclusively that cytomegalovirus was involved with the syndrome, and probably transmitted with fresh blood from donors with subclinical infections as antibody titers to cytomegalovirus may be found in 50% of the general population and in 10-15% of children. (No refs.)
M. T. Lender.

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1641 KETTYLS, G. D., VERRALL, V. M., HOPPER, J. M. H., KOKAN, P., & SCHMITT, N. Serological survey of human arbovirus infections in southeastern British Columbia. *Canadian Medical Association Journal*, 99(12): 600-603, 1968.

In a human serum survey of 1,268 volunteers carried out in southeastern British Columbia during the spring of 1967, hemagglutinin-inhibiting antibodies for western equine encephalomyelitis virus were found in 21 of the test sera, for California encephalitis virus in 21, and for Powassan virus in 25. Complement-fixing antibodies for western equine encephalomyelitis virus were discovered in no sera, for California encephalitis virus in 2, for Colorado tick fever virus in 2, and for Powassan virus in 1. Neutralizing antibodies for western equine encephalomyelitis virus were detected in 16 of 21 sera positive by hemagglutination-inhibition or complement fixation, for California encephalitis virus in 3 of 23 sera, for Colorado tick fever virus in neither of 2 sera, and for Powassan virus in none of 26 sera. These findings suggest that human infection due to these arboviruses may occur in British Columbia. (24 refs.) - *Journal summary.*

Division of Laboratories
British Columbia Department of
Health Services and Hospital Insurance
Vancouver 9, British Columbia, Canada

1642 REIMANN, HOBART A. Eradication (?) of infectious diseases. *Archives of Environmental Health*, 17(2):154-155, 1968. (Editorial)

Although the incidence of many infectious diseases has been greatly reduced, eradication has not yet been achieved. There has been an increase in venereal, nosocomial and iatrogenic diseases, and septicemias. The effectiveness of antimicrobial agents is reduced as microbes become resistant and transfer this resistance to other microbes, and while vaccinations are generally beneficial, they sometimes cause the disease they are designed to prevent or may produce other side effects. Problems also exist in the healthy person or in recovered carriers of disease, in airborne bacteria, and in soil-borne bacteria. With these factors contributing to the spread of infectious disease, eradication cannot be expected in the near future. (7 refs.) *E. F. MacGregor.*

1643 SUGG, WILLIAM C., FINGER, JAMES A., LEVINE, RONALD H., & PAGANO, JOSEPH S. Field evaluation of live virus mumps vaccine. *Journal of Pediatrics*, 72(4):461-466, 1968.

A double-blind evaluation of a new live, attenuated mumps vaccine was conducted with 3,294 school children in Forsyth County, North Carolina. Serum specimens were studied for 556 children at the time of vaccination and 1 month afterward. Oral temperature of all children in 6 classrooms (including non-participants) and absences from school due to mumps were recorded. Children who had an initial neutralizing antibody titer of less than 1:2 were considered to be susceptible. Of those children receiving vaccine, 34.9% were susceptible while 37.1% of those children receiving placebos were susceptible. When the vaccinated children were checked 1 month later, 98.1% had a twofold rise in titer and 85.6% had a fourfold rise. In those receiving placebos, the respective values were 44% and 22%. There were no clinical reactions to the vaccine. Five of those vaccinated and 13 of the placebo group developed mumps. The effectiveness of the vaccine was determined to be 95.6% using a special formula of vaccine efficacy. (8 refs.) *M. T. Lender.*

Department of Medicine
University of North Carolina
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Chapel Hill, North Carolina

1644 NADER, PHILIP R., & *WARREN, ROBERT J. Reported neurologic disorders following live measles vaccine. *Pediatrics*, 41(5):997-1001, 1968.

During the distribution of nearly 15 million doses of live measles vaccine between January 1965 and February 1967, 23 cases of encephalitis were reported that were associated, at least temporarily, with the administration of the vaccine. The children received vaccine from different production lots and developed symptoms of CNS disease between 3 and 24 days after vaccination. Fifteen had measles antibodies, but 5 had no detectable antibodies. One of the cases was a boy from whom *Herpes simplex* was isolated and who had no antibodies to either measles or *H. simplex*, and less than 10 mg/100 ml immunoglobulin G, an indication that the association between the vaccine and encephalitis was coincidental. Encephalitis occurs at a rate of 39/1,000,000 population/year in the 1-9 age group and at a rate of 1.5/1,000,000 doses of vaccine, indicating that the risk of encephalitis is

much greater after the natural disease than after use of the live attenuated measles virus vaccine. (11 refs.) - *M. T. Lender.*

*Medical Arts Building
Richmond, Indiana 47374

1645 HILLEMAN, MAURICE R., BUYNAK, EUGENE B., WEIBEL, ROBERT E., & STOKES, JOSEPH. Live, attenuated rubella virus vaccine. *New England Journal of Medicine,* 279(6):300-303, 1968.

The Merck (Benoit), HVP-77, and 120 (Meyer-Parkman), Cendehill, and RA 27/3 strains of rubella virus are potentially acceptable for vaccine purposes if they are properly propagated and attenuated. Ideally, a rubella vaccine should cause little or no clinical effects, provide lasting immunity, should be noncontagious to susceptible persons, and should be prepared with a safe cell culture. Researchers have obtained good success with duck-embryo vaccines and monkey, dog, and rabbit kidney vaccines. Human diploid cell (WI-38) vaccine has caused the appearance of clinical symptoms in the Ss. The next large epidemic may occur in 2 or 3 years in the United States, and the proper use of the vaccines could reduce the epidemic and the resulting infant deformities. (16 refs.) *M. T. Lender.*

Merck Institute for Therapeutic Research
West Point, Pennsylvania

1646 Rubella. *Lancet,* 2(7573):861, 1968. (Annotation)

Of new methods being tried for the prevention of rubella in pregnant women, γ-globulin was found not to protect against the disease (even though a double dose produced detectable antibodies); HPV 77 strain vaccine produced immunity but was excreted in the throats of about 25% of those vaccinated and, out of 35 Ss, caused arthralgia in 12 and arthritis in 10; the Cindehill strain is also excreted from the throat but does not produce arthralgia or arthritis. A vaccine which did not have excretion from the throat is preferred. Because of the impractibility of so many of the approaches to control of rubella, the most feasible may be general infant vaccination and maintenance of checks of antibody levels in the susceptible female population. (3 refs.) - *E. F. MacGregor.*

1647 BANATVALA, J. E. Laboratory investigations in the assessment of rubella during pregnancy. *British Medical Journal,* 1(5591):561-562, 1968.

Laboratory investigation for assessment of rubella exposure and infection during pregnancy may save the lives of fetuses and spare needless anxious months. Serum for laboratory tests should be obtained as soon as possible after contact with rubella. High titre in the hemagglutination-inhibition (HI) test or the hemagglutination neutralization test may indicate immunity due to previous infection. Because complement fixation antibodies develop later, the complement fixation test (CF) may be valuable in diagnosis of rubella infection when there has been a delay in procurement of serum. Tests for high molecular weight (IgM) antibodies can be useful as they appear after a single antigenic stimulus and are present for only 3 to 4 weeks after the rash. Virus isolation from clinical specimens may take 10 to 21 days. Laboratory tests on pregnant women suspected of rubella contact are recommended to discover those patients already immune or to support the diagnosis in those cases in which the virus may not be isolated. (22 refs.) - *W. Asher.*

Clinical Virology Laboratory
St. Thomas's Hospital
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1648 HERTZBERG, R. Twenty-five-year follow-up of ocular defects in congenital rubella. *American Journal of Ophthalmology,* 66(2):269-271, 1968.

Follow-up eye examinations of 50 patients with congenital rubella originally studied by Gregg in 1942 following the 1940-1941 rubella epidemic in New South Wales revealed rubella retinopathy present in 19 patients, bilaterally in 14, which had not seriously reduced visual acuity. This emphasizes the nonprogressive nature of rubella retinopathy. Examination included visual acuity testing, ophthalmoscopy, and refraction error tests. Cataracts had been extracted in 10 patients. Four eyes were disorganized. Other ocular defects included iris nevus in 2 patients, nystagmus with optic atrophy or aphakia in 5, vitreous opacities in 1, choroiditis not characteristic of rubella in 2, small peripheral lens opacity in 2 patients, and a refractive error in 27 patients. (2 refs.) *R. D. Nunn.*

Children's Medical Research Foundation
Camperdown, N. S. W. 2050, Australia

1649 WAUBKE, RAINER, ZUR HAUSEN, HARALD, & HENLE, WERNER. Chromosomal and autoradiographic studies of cells infected with Herpes simplex virus. *Journal of Virology*, 2(10):1047-1054, 1968.

A chromosomal and autoradiographic analysis of BHK-21 Syrian hamster kidney cells which were infected with *Herpes simplex* virus at high multiplicities demonstrated chromosomal aberrations at 3 hours which became prominent at 4 hours. It was concluded that induction of the chromosomal lesions was independent of viral DNA replication, and the results also indicated that the virus can replicate in cells in the late G-2 period or in metaphase. Much of the viral DNA was unassociated with chromosomes. The capacity of *H. simplex* to cause chromosomal aberrations was more resistant to ultraviolet than the infectious property since the rates of inactivation varied by a factor of about 4. The implications of these results were discussed. After large amounts of ultraviolet light, the invasion of the nuclei by the irradiated virus is reduced. It was suggested that the chromosomal lesions induced by the virus appear to come from action of an early enzyme under control of the viral genome. (16 refs.) *B. Bradley.*

Virus Laboratories
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Philadelphia, Pennsylvania 19146

1650 MONIF, GILLES R. G., BRUNELL, PHILIP A., & HSIUNG, G. D. Visceral involvement by Herpes simplex virus in eczema herpeticum. *American Journal of Diseases of Children*, 116(3):324-327, 1968.

Herpes simplex virus was recovered from the central nervous system and liver of an infant in the recovery phase of eczema herpeticum who died of *Pseudomonas* septicemia. Histological evidence of virus dissemination to the adrenal glands was present. (11 refs.) *Journal summary.*

Department of Obstetrics & Gynecology
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Gainesville, Florida 32601

1651 FOSSON, ABE R., & *FINE, RICHARD N. Neonatal meningitis: Presentation and discussion of 21 cases. *Clinical Pediatrics*, 7(7):404-410, 1968.

Twenty-one cases of neonatal meningitis in Children's Hospital in Los Angeles over a 6 year period are discussed. Data on all infants less than 28 days of age at time of onset of disease, who had positive bacterial culture of the cerebrospinal fluid, who had over 30 white blood cells in CSF despite negative culture, or who on postmortem, had evidence of purulent meningitis are included. Cases where meningitis was associated with CNS anomalies were omitted. Bacteria in these cases of neonatal meningitis were similar to those described by other investigators. Fourteen cases were found to be due to *Escherichia coli* and 1 case was due to a paracolon bacteria. In a larger survey of 478 cases, *Streptococcus* was found to be the second most frequent organism involved in neonatal meningitis. Birth or prenatal complications are found more frequently in case histories of patients with neonatal meningitis and premature infants are more vulnerable. The diagnostic signs and symptoms are non-specific; therefore, effective and early diagnosis relies on the use of lumbar puncture and this procedure should be implemented when the infant displays any abnormal sign for no apparent reason. Mortality rate does not appear related to the infecting organisms; however, the mortality rate is lower if the disease onset occurs in the second 2 weeks especially if a nonenteric organism is involved. The most important factors in treatment of this disease are: early recognition and prompt institution of therapy. Antibiotic therapy should be aimed both for enteric and nonenteric organisms and a combination of penicillin and kanomycin is most commonly applied; however, ampicillin with kanamycin may have even more advantages for treatment of this disease. Frequent bacteriologic monitoring of the CSF is suggested. (33 refs.) *B. Bradley.*

*Children's Hospital of Los Angeles
4650 Sunset Boulevard
Los Angeles, California 90027

1652 OKUBADEJO, O. A., & ALAUSA, K. O. Neonatal meningitis caused by Edwardsiella tarda. *British Medical Journal*, 3(5614):357-358, 1968.

A case study of a newborn baby with fatal meningitis and septicemia from *Edwardsiella tarda* infection is presented. The patient was treated with streptomycin, penicillin, chloramphenicol, and sulphadiazine. Despite intensive therapy, the patient died; a diagnosis of meningitis, hydrocephalus, and bronchopneumonia was made. *E. tarda* has previously been associated with gastroenteritis, and once before with meningitis. The

lack of effectiveness of the antibiotic treatment may have been due to incompatibility of the antibiotics. (13 refs.) - *M. T. Lender.*

Department of Medical Microbiology
University College Hospital
Ibadan, Nigeria

1653 SNYDER, RUSSELL D., & NELLHAUS, GERHARD. "Brain damage" as a predisposing factor in bacterial meningitis. *Developmental Medicine and Child Neurology,* 19(5):641-643, 1968.

The case reports of 92 children and adolescents who had bacterial meningitis were examined in order to study the possibility that non-progressive brain damage is predisposing to meningitis. *Hemophilus influenzae, Neisseria meningitidis, Diplococcus pneumoniae,* β-hemolytic *Streptococcus,* or *Staphylococcus aureus* were found in the CSF of all but 10 cases. Only 1 case, a 14-year-old boy, had pre-existing neurological disease and MR. The fact that only 1 case out of 92 had "pre-existing non-progressive cerebral dysfunction" indicates that brain damage is not a predisposing factor in bacterial meningitis. (9 refs.) - *M. T. Lender.*

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2211 Lomas Boulevard, N. E.
Albuquerque, New Mexico 87106

1654 WALKER, STUART H., & COLLINS, CHESTER C.,Jr. Failure of Cephaloridine in Hemophilus influenzae meningitis. *American Journal of Diseases of Children,* 116(3):285-291, 1968.

Three infants with *Hemophilus influenzae* meningitis were treated with cephaloridine in high dosage. Clinical deterioration and continued isolation of the etiologic organism despite the achievement of inhibitory serum and cerebrospinal fluid concentrations of the drug were noted in each. Cephaloridine should not be employed as therapy in *H. influenzae* meningitis. (10 refs.) - *Journal summary.*

Department of Pediatrics
Mercy Hospital
301 St. Paul Place
Baltimore, Maryland 21202

1655 RANDOLPH, MARTIN, & GELFMAN, NELSON A. Acute encephalopathy in children associated with acute hepatocellular dysfunction: Reye's syndrome revisited. *American Journal of Diseases of Children,* 116(3):303-308, 1968.

A 5-year-old white boy developed acute encephalopathy following a 4-day prodromata of mild upper respiratory and gastrointestinal symptoms and 1 day of severe emesis. Serum transaminase and ammonia levels were strikingly elevated and there was transient hepatomegaly. Three siblings had a concurrent illness characterized by mild upper respiratory and gastrointestinal complaints and elevated serum transaminase levels. This was considered an instance of Reye's syndrome, with complete recovery of the patient and with related illness in the siblings. The importance of serum transaminase levels in the differential diagnosis of childhood encephalopathy is re-emphasized. (10 refs.) - *Journal summary.*

Danbury Hospital
Danbury, Connecticut 06810

1656 NORMAN, M. G. Encephalopathy and fatty degeneration of the viscera in childhood: Review of cases at The Hospital for Sick Children, Toronto (1954-1966). *Canadian Medical Association Journal,* 99(11):522-526, 1968.

The clinical and pathological features of encephalopathy and fatty liver occurring in 21 children have been reviewed. The clinical picture was of a mild prodromal illness, frequently an upper respiratory infection lasting several days, followed by vomiting. The children then rapidly became unconscious and died, 3/4 of them in 24 to 30 hours. Laboratory investigation revealed hypoglycemia, mild metabolic acidosis, respiratory alkalosis and disturbed liver function. Necropsy showed cerebral edema and anoxic neuronal changes. There was marked diffuse fatty change in the liver and fat was present in the kidney tubules. The clinical, biochemical and pathologic features were not specific. The association of the syndrome with chickenpox in 3 cases, with infectious hepatitis in other family members in 1 case, and with mild viral illness in the family in 1/4 of the cases, was noted. Although there was an epidemiological association with viral disease, virus could not be isolated from these patients, making it difficult to establish the connection. Lack of history of exposure to toxins and lack of toxicological determinations did not exclude the possible etiological role of toxins. The possibility

that several factors combine to cause the syndrome is suggested. A plan for investigation of future cases is outlined. Because hypoglycemia alone could cause the brain damage it should, when present, be treated vigorously in children suffering from any acute encephalopathy. (29 refs.) - *Journal summary.*

The Hospital for Sick Children
555 University Avenue
Toronto 2, Ontario, Canada

1657 COBB, W. A., & MORGAN-HUGHES, J. A. Non-fatal subacute sclerosing leucoencephalitis. *Journal of Neurology, Neurosurgery, and Psychiatry,* 31(2):115-123, 1968.

Two patients are described, aged 21 and 18 years, who had slowly progressive illnesses lasting at least 15 months and 2 years, respectively, from which they gradually recovered. One patient, a college student, had an above average IQ which fell to a low of 57 and gradually recovered partially. The other patient had a below average IQ which fell to 60, then rose to 89. Both cases had epileptic attacks, minor motor disturbances, and in both, the Lange curve showed a first zone rise which disappeared with recovery. The diagnosis of subacute sclerosing leucoencephatitis was made in both cases on the basis of EEG patterns. A frontal biopsy confirmed this diagnosis in the older patient but was equivocal in the younger. The loss and gradual recovery of intellectual facilities is notable and indicates that the disease became arrested when the cerebral damage was relatively slight. (17 refs.)
M. G. Conant.

National Hospital and the Institute of Neurology
Queen Square
London, England

1658 PAINE, RICHMOND S. Kernicterus. *Clinical Proceedings of Children's Hospital of the District of Columbia,* 24(2): 37-47, 1968.

The occurrence of kernicterus is now uncommon; however, cerebral palsy, chorio-athetosis, dystonia, and MR are often found among the survivors of the disease. The yellow pigment which is found in areas of the brain in kernicterus is probably bilirubin. The occurrence and severity of kernicterus seems to be related to the age of the baby, anoxia, Rh and ABO factors, and possibly hypoglycemia. Opisthotonus, defective Moro response, the "setting sun" sign, and shrill cry are the clinical signs of kernicterus. The absence of these signs gives some assurance that neurological sequelae of kernicterus will not occur. The presence of 1 or more such signs indicates that athetosis, dystonia, chorea, and/or MR may occur later in life. A high frequency hearing loss is also typical of kernicterus and can be detected when the child begins to speak. Frequently, consonants, because of their higher frequencies, will not be heard by the child, and he will pronounce words with several or all of the consonants missing. Some impairment of eye movement may also be present in kernicterus; difficulty in raising the eyes is the usual manifestation, but total paralysis may be present. Bracing, physical therapy, and new orthopedic surgery and/or neurosurgery are the only methods for treatment. (5 refs.)
M. T. Lender.

George Washington University
School of Medicine
Washington, D. C.

1659 BENTLEY, HERSCHEL P., JR. Hyperbilirubinemia of the newborn infant. In: Shirkey, Harry C., ed. *Pediatric Therapy.* Third edition. St. Louis, Missouri, C. V. Mosby, 1968, Chapter 89, p. 700-705.

The therapy used in some commonly encountered types of neonatal hyperbilirubinemia (idiopathic hyperbilirubinemia, hemolytic disease of the newborn, congenital hemolytic icterus, and obstructive jaundice) is discussed. An exchange transfusion is indicated for infants with clinical evidence of hydrops fetalis, with cardiac failure due to severe anemia, whose cord blood has a positive direct Coomb's test and a hemoglobin concentration less than 13 g%, whose bilirubin level reaches 12 mg% in the first 12 hours, whose bilirubin level reaches 20 mg% (in the term infant) or 18 mg% (in the premature infant), or for sick infants with idiopathic hyperbilirubinemia at serum bilirubin levels of 23-25 mg% (full-term) and 20 mg% (premature). An exchange transfusion is made with heparinized blood from Rh-negative donors and the technique is described. The serum bilirubin levels in infants with congenital nonhemolytic icterus are significantly lowered by oral use of the exchange resin cholestyramine. Surgery is the preferred therapy in obstructive jaundice, while oral administration of cholestyramine relieves itching and lowers serum bilirubin levels. (18 refs.) - *M. G. Conant.*

1660 LUCEY, JEROLD, FERREIRO, MARIO, & HEWITT, JEAN. Prevention of hyperbilirubinemia of prematurity by phototherapy. *Pediatrics*, 41(6):1047-1054, 1968.

Phototherapy was shown to be a safe treatment for hyperbilirubinemia of prematurity in a controlled clinical study of 111 infants of birthweight less than 2,500 grams. Fifty-three infants from 12 to 144 hours of age received continuous phototherapy from 10 20-watt bulbs over the incubators while 58 control infants received no phototherapy. Infants with a positive Coombs test were excluded and infants with bilirubin over 20 mg/100 ml were removed and transfused. Both experimental groups were comparable as to gestational age, sex, Apgar scores, weight loss, infections, and fluid intake. Significant differences were observed on the fourth and sixth days of life between the 2 groups. Follow-up at 6 months of age of 102 infants showed retarded motor development in 2 Ss in the light group and 1 S in the control group. Studies of bilirubin excretion and the chromic exposure to phototherapy of Gunn rats which have high unconjugated bilirubin levels have confirmed the non-toxic nature of photodecomposition products of bilirubin. No short-term ill effects have been reported in over 1,000 jaundiced infants treated by phototherapy. Phototherapy may be of use in the sick prematures who are poor risks for exchange transfusion and who have slower rising bilirubin levels; however, it has been ineffective in severe hemolytic disease. (39 refs.) *L. E. Clark.*

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College of Medicine
Burlington, Vermont 05401

1661 McMULLIN, G. P. Phenobarbitone and neonatal jaundice. *Lancet*, 2(7575): 978-979, 1968. (Letter)

In order to discover whether phenobarbitone is useful in the prevention of neonatal hyperbilirubinemia, a pilot test was made with 24 neonates who had serum-bilirubin levels above 10 mg/100 ml. Group 1 (12 infants) received phenobarbitone (5 mg) every 8 hours while group 2 (12 infants) had no special treatment. The difference between the groups of the mean fall in total bilirubin and indirect bilirubin was not significant but was suggestive. While this treatment may not prevent significant hyperbilirubinemia, it may shorten the duration. (5 refs.) - *E. F. MacGregor.*

St. Peter's Hospital
Chertsey, Surrey
England

1662 BRITTEN, ANTHONY F. H. Neonatal exchange transfusion: Present status. *Clinical Pediatrics*, 7(3):125-129, 1968.

With the prevention of kernicterus and MR as the objective, consideration is given to the technique, operator, route of administration of blood, apparatus, and the indications for exchange transfusion in neonatal hyperbilirubinemia. Kernicteric neonates include: ABO and Rh incompatibilities; glucose-6-phosphate dehydrogenase deficiencies; jaundice of prematurity; and severe non-obstructive cases of jaundice. Plasma bilirubin (unconjugated) must remain below 20 mg/100 ml. Exchange transfusion will reduce hemolyzing fetal RBCs and uncombined maternal antibody and correct anemia and hypervolemia. The technique and equipment are based on those of Diamond and immunological study of maternal serum before delivery will speed the selection of blood. Fresh blood, less than 5 days old, is recommended. Heparinized blood has advantages over ACD (acid-citrate-dextrose) banked blood. Albumen binds bilirubin and aids in removal but has not come into wide use. Frozen RBCs suspended in albumen or autologous plasma has advantages over ACD blood and heparinized blood. The mortality from an exchange in a vigorous infant, in skilled hands, has been reported as 0.1%. Exchanges are recommended whenever unconjugated bilirubin is greater than 20 mg/100 ml, and is imperative in any hydropic or anemic neonate. The need for exchange transfusions should decrease in the future because passive immunization of Rh-negative women will reduce the incidence of hyperbilirubinemia. γ-Globulin from Ss with high titers of IgG anti-D given postpartum reduces sensitization to an Rh-positive fetus. Phototherapy may also reduce need for exchange. (52 refs.) - *L. E. Clark.*

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New England Medical Center Hospitals
Boston, Massachusetts 02111

1663 BOWMAN, J. M., & CHOWN, B. Prevention of Rh immunization after massive Rh-positive transfusion. *Canadian Medical Association Journal*, 99(9):385-388, 1968.

Two Rh-negative women, given 700 and 870 μg respectively, of anti-Rh IgG following massive fetal transfusion of 100 and 435 ml of Rh-positive blood, did not develop Rh antibodies. Failure to become iso-immunized may have been due to chance. However, protection may have been related to the ratio of the dose in μg of anti-Rh IgG given to the volume in ml of Rh-positive blood received. The

ratios were 4.1:1 in those not immunized and 1.8:1 in those who were. It is suggested that a cooperative study of this problem be made, in which Rh-negative women who have received more than 50 ml of Rh-positive fetal or adult blood will be given 10 μg of anti-Rh IgG for every ml of Rh-positive blood they have received, in doses of 1,000 μg daily until the total dose has been given. The Rh Laboratory, Winnipeg, will supply the anti-Rh IgG and will carry out fetal red cell testing and immediate, 6-week, 3-, 6-, and 12-month Rh-antibody studies. The Rh Laboratory in Winnipeg may be reached at 1-204-774-7540. (9 refs.) - *Journal summary.*

Children's Hospital of Winnipeg
685 Bannatyne Avenue
Winnipeg 3, Manitoba

1664 KRIEG, H., & KASPER, K. ABO incompatibility as a cause of abortion. *German Medical Monthly,* 13(4):171-175, 1968.

The known causes of abortion are briefly listed and earlier studies of the connection between ABO-incompatibility and spontaneous abortion are reviewed. We grouped 844 mothers together with their husbands and the children resulting from their latest pregnancy. ABO-incompatibility existed in 34.8% of the couples, a figure roughly equal to the incidence of ABO-incompatible matings in the German population. However, of 163 women who had had abortions, 45.4% were ABO-incompatible with their husbands. ABO-incompatible couples had a significantly higher abortion rate than ABO-compatible couples. In a second series of 61 cases, we determined the blood groups of aborted fetuses by the hemagglutination-inhibition technique and compared them with the mother's blood group. The methods for grouping fetuses are reviewed. ABO-incompatibility between mother and fetus was found in 44.3%. The blood group frequencies among the aborted embryos differed from the frequencies among the German population as given by Hirszfeld. The most striking difference was the low proportion of Group O embryos. (18 refs.) - *Journal summary.*

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1665 HARBERT, GUY M., JR., CLAIBORNE, HERBERT A., JR., McGAUGHEY, HARRY S., JR., WILSON, LESTER A., JR., & THORNTON, W. NORMAN, JR. Convulsive toxemia. *American Journal of Obstetrics and Gynecology,* 100(3):336-342, 1968.

Over a 25-year period ending in 1963, 168 women with diagnosis of convulsive toxemia were admitted to the University of Virginia Hospital where conservative medical management rather than termination of pregnancy within an arbitrary time limit was the policy. The incidence of eclampsia (hypertension, edema, and/or albuminuria) and convulsions at the hospital was 1/234 infants delivered (1/81 during the first 5 years of the study and 1/1,032 during the last 5 years) and 8 maternal deaths occurred, all within the first 6 years. In 81.5% of cases, the onset of labor was spontaneous, while the others were induced or required Cesarean section. Perinatal mortality was 21.6% of infants at risk. Conservative treatment of convulsions or coma and progression of pregnancy until near term for maximum fetal maturity was preferable to rapid delivery as soon as control was achieved, and termination of pregnancy was reserved for those who did not respond to treatment. Although 16.9% of patients developed subsequent hypertension, the loss to follow-up of 20.8% of the sample makes prediction of cause-and-effect relationships invalid. (7 refs.) - *E. L. Rowan.*

Department of Obstetrics and Gynecology
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1666 ROSEFSKY, JONATHAN B., & PETERSIEL, MEL E. Perinatal deaths associated with mepivacaine paracervical-block anesthesia in labor. *New England Journal of Medicine,* 278(10):530-533, 1968.

Fetal bradycardia and depression at birth have previously been reported with varying frequency after paracervical block given for the relief of pain in the first stage of labor. This report concerns the death of 2 infants occurring after mepivacaine paracervical block. The first experienced prolonged bradycardia and was stillborn. Bradycardia in the second coincided with maternal analgesia. This infant subsequently had convulsions and died. Mepivacaine was found in the urine. Other investigators have detected

mepivacaine in depressed infants born after caudal and lumbar epidural anesthesia. Rapid passage of mepivacaine into the fetal circulation, impaired detoxification in the newborn period and increased acidosis in the perinatal period have been noted. Further study of the obstetric use of local anesthetics, and especially their paracervical administration, is imperative. (15 refs.) *Journal abstract.*

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1667 DAVIS, JOSEPH R., ABRAHAMS, RONALD H., FISHBEIN, WILLIAM I., & FABREGA, ENRIQUE A. Urinary delta-aminolevulinic acid (ALA) levels in lead poisoning. II. Correlation of ALA values with clinical findings in 250 children with suspected lead poisoning. *Archives of Environmental Health,* 17(164-171, 1968.

In a single-blind evaluation, a positive correlation of 91% was found between urinary ALA and the clinical diagnosis of increased lead exposure in 250 children (CA 9 mos to 6 yrs) with suspected lead ingestion. A 0.5 ml urine sample was passed through AG 1-X8 resin in a dual disposable chromatographic column unit held in a support rack over a drain tray with retention of ALA on AG 50W-X4 resin for subsequent elution with sodium acetate trihydrate solution. Urinary ALA was determined colorimetrically using Ehrlich's reagent II, with values of 1.00 mg/100 cc or less considered normal. The analytical method is rapid (200 determinations by 1 person in 4 hrs); is adaptable to mass screening; and gives only 3% false-negative results and 6% false-positive results. None of the other laboratory tests studied (wrist X-ray, abdominal X-ray, hemoglobin, and hematocrit) had a degree of accuracy comparable to the urinary ALA test for the detection of early lead exposure. (26 refs.) - *M. G. Conant.*

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Hines, Illinois

Trauma or Physical Agent:

1668 MEALEY, JOHN, JR. *Pediatric Head Injuries.* Springfield, Illinois, Charles C. Thomas, 1968, 243 p. $10.50.

More than 3,000 children die annually and 10,000 to 20,000 have prolonged impairment or significant mental and physical sequelae from head injuries. Follow-up studies of children with subdural hematoma due to birth trauma or postnatal injury and whose management emphasized craniotomy and stripping away the subdural membranes, revealed that good results from treatment varied from less than 1/3 to about 3/4 of the cases. Morbid survivors present a wide variety of mental and physical handicaps which range from mild MR to complete failure of psychomotor development. Although recovery potential after major brain injury appears to be inherently greater in young people than in adults, the sequelae of severe closed head trauma in childhood include minor detrimental effects on intellectual ability and performance, and can range to total physical and mental impairment. The most frequent, deceptive, and lethal neurosurgical emergency following severe head injury in childhood is extradermal hematoma. This detailed consideration of contemporary data on the complications of various head injuries and their initial and eventual effects on growth and development should be of interest to family physicians, pediatricians, neurologists, neurosurgeons, medical students, interns, and residents. (270-item bibliog.) *J. K. Wyatt.*

CONTENTS: Mechanisms and Pathology; Diagnostic Procedures; Closed Head Injury; Skull Fractures and Related Conditions; Extradural Hemorrhage, Intradural Hemorrhage; and Perinatal Injuries.

1669 Weight of baby's head may cause a puzzling death. *Medical World News*, 9(10):23, 1968.

In 7 of 8 sudden unexplained deaths (SUD) of healthy infants, autopsy showed spinal epidural hemorrhage which had formed a layer up to 3 mm thick around the dura at the cervical and upper thoracic levels. This acute spinal injury could result from a relatively heavy head (1/4 of total body weight) on a weak spine and could be self-inflicted. The injury, while not fatal in itself, could (by spinal trauma) impair the cervical cord, cause spinal shock, and suppress cardiopulmonary functions. (No refs.)
E. F. MacGregor.

1670 KLACHKO, DAVID M., WINER, NATHANIEL, BURNS, THOMAS W., & WHITE, J. EARLE. Traumatic hypopituitarism occurring before puberty: Survival 35 years untreated. *Journal of Clinical Endocrinology and Metabolism*, 28(12):1768-1772, 1968.

A 39-year-old male with hypopituitarism following severe head trauma at age 4 is described. Clinical and laboratory studies revealed deficiencies of gonadotropin, thyrotropin and corticotropin and partial deficiency of vasopressin secretion. Serum growth hormone was detectable but failed to rise in response to insulin-induced hypoglycemia. Despite severe hypopituitarism, he attained a height of 63 3/4 inches. These observations and the probable site of the lesion are discussed in light of present concepts of regulation of anterior pituitary function by the hypothalamus. (31 refs.)
Journal abstract.

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1671 JACOBSON, IVAN V. Effect of x-rays and hypoxia on the fetus. *Postgraduate Medicine*, 44(4):152-156, 1968.

The human fetus is probably most susceptible to ionizing radiation during the first 42 days of gestation; however, the minimum level of radiation that can cause adverse effects has not yet been determined. Likewise, little is known about the effects of hypoxia on the fetus. A woman, 1 month pregnant, was treated for an abdominal aortic aneurysm and was subjected to 20 rad and a 90-minute cross-clamping of aortic circulation. Subsequently, the full-term child was determined to be normal based on pediatric examination, and opthalmologic, blood, and chromosome studies. This baby escaped the potential teratogenic effects; nevertheless, the dangers of drugs and x-rays during pregnancy, especially the first trimester, should also be evaluated carefully when weighing potential benefits to the mother. (24 refs.) - *M. T. Lender.*

Roosevelt Hospital
New York, New York

1672 CAMPBELL, A. G. M., MILLIGAN, J. E., & TALNER, N. S. The effect of pretreatment with pentobarbital, meperidine, or hyperbaric oxygen on the response to anoxia and resuscitation in newborn rabbits. *Journal of Pediatrics*, 72(4):518-527, 1968.

Since it has been reported that some anesthetics prolong gasping during anoxia and thereby give increased survival, the effects of pentobarbital and meperidine, both of which are often used during labor, on anoxia in newborn rabbits and subsequent resuscitation were studied. Hyperbaric oxygen has been recommended for the treatment of newborn infants with respiratory distress syndrome, for resuscitation in asphyxia at birth, and in surgical cases in which hypoxia may subsequently occur. Therefore, the effects of pretreatment with 2 atm O on subsequent survival in anoxia and resuscitation are also studied. Both drugs prolonged primary apnea and the time to last gasp. The number of spontaneous gasps was decreased by meperidine during anoxia and unaffected by pentobarbital. However, after prolonged anoxia, 20 mg pentobarbital/kg increased the recovery of rabbits, whereas no difference in survival after meperidine or 10 mg pentobarbital/kg, a sedating dose, was seen. Pretreatment with hyperbaric oxygen had no effect on the pattern of response to anoxia and decreased survival on resuscitation. The adverse effect of hyperbaric O on survival was partially prevented by sedating doses of pentobarbital before exposure to oxygen. (25 refs.)
K. Drossman.

Department of Pediatrics
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1673 McGOWAN, GORDON W. Massive transplacental hemorrhage with neonatal death. *Journal of the American Medical Association*, 203(8):599-601, 1968.

Spontaneous and unexplainable massive transplacental hemorrhage has been reported 15 times in the literature and in the present case occurred during the spontaneous delivery of a 7 pound, 13 ounce male baby. The baby had good quality heart sounds *in utero*, but bradycardia when the cervix dilated 7 cm, and no heartbeat and a 0 Apgar rating after delivery. Although several resuscitation procedures established a regular respiration and the heart and lungs returned to normal, hypertonia of all muscles developed, and the baby died. A maternal blood test revealed that she had 7.4% fetal red blood cells, and it became obvious that at least 200-250 cc of fetal blood had been transfused into the maternal circulation. Immediate blood counts should be performed on all newborns with asphyxia pallida as immediate transfusion could save those infants who have suffered hemorrhage and the incidence of such massive hemorrhages may be higher than realized. (16 refs.) - *M. T. Lender.*

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1674 CAPUTE, ARNOLD J., NIEDERMEYER, ERNST F. L., & RICHARDSON, FREDERICK. The electroencephalogram in children with minimal cerebral dysfunction. *Pediatrics*, 41(6): 1104-1114, 1968.

In an EEG study of 106 children diagnosed as having "minimal cerebral dysfunction," it was found that 53 had normal tracing, 45 had slight to moderate EEG abnormalities, and 8 had very abnormal records. Five abnormal tracings were found in a control group of 33 children. The children had hyperkinesis, short attention span, mood lability, and behavioral disorders; however, no children with MR, CP, or gross neurological defects were included. The 53 normal EEG tracings showed a mild increase in slow activity or a slightly higher degree of disorganization but remained within normal limits. The slight to moderate abnormal records included excessive slowing, asymmetry, and minor paroxysmal abnormalities. The markedly abnormal records showed a high degree of abnormal frequencies or developed spikes. The "14 & 6"/second positive spike pattern as a diagnostic tool was not supported and little evidence to attribute hyperkinetic and aggressive behavior to an epileptic mechanism was found. Although the EEG can be a valuable tool in diagnosing minimal cerebral dysfunction, it cannot be the only basis. (56 refs.) - *K. Drossman.*

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1675 HAYWOOD, H. CARL, ed. *Brain Damage in School Age Children.* Washington, D. C., The Council for Exceptional Children, 1968, 273 p.

The chaotic state of research and programing that exists in the areas of diagnosis and remedial education of brain damaged children will not be resolved until progress is achieved in the solution of diagnostic problems. Diagnostic inferences about brain damaged individuals should be made by physicians and by appropriately trained nonmedical professional personnel such as clinical neuropsychologists. Children identified as neurologically impaired exhibit a heterogeneous range of behaviors; therefore, this diagnosis has little utility for remedial education. In order to study brain-damaged children and identify their specific needs, the behavior characteristics need to be divided into subgroups. Although data obtained from a battery of tests may be used to establish a firm relationship between neurological inferences and psychological test performance and to understand the unique group of problems of an individual child, research which will effectively relate the same test information to the children's social and educational problems is needed. The papers in this book were delivered at a professional workshop in brain damage in school age children, which was held at George Peabody College for Teachers, Nashville, Tennessee in August 1965. The areas considered were clinical neuropsychology, psychological diagnosis, neurological foundations and the problems of epilepsy and organic language disorders, treatment approaches, and anoxia. This book should be of interest to special educators, as well as educators, psychologists, pediatricians, hearing and speech specialists, and child psychiatrists. (345 refs.) - *J. K. Wyatt.*

CONTENTS: Introduction to Clinical Neuropsychology (Haywood); An Overview of the Organization of the Central Nervous System (Tapp & Simpson); The Epilepsies (Folsom); Organic Language Disorders in Children (Horton); The Use of Psychological Tests in Diagnosing Brain Damage in School Children (Reed, Jr.); Screening Children with Cerebral Dysfunctions through the Laboratory Method

(L'Abate); Minimal Brain Dysfunction: A Dilemma for Educators (Dunn); A Summary of the Literature on Behavior Disorders in Brain Damaged Children (Clark); Neurological Organization: An Evaluative Review of the Theories and Procedures of Doman and Delacato (McDonald); and Anoxia: An Annotated Bibliography (Lewis).

1676 HAYWOOD H. CARL. Introduction to clinical neuropsychology. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., The Council for Exceptional Children, 1968, p. 3-19.

Both neuropsychology and clinical neuropsychology relate behavior to pathological conditions of the nervous system and are based on the assumption that the brain is the principle mediating organ of behavior with considerable localization of function within the CNS. Types of brain disorders classified as brain damage include physical trauma, metabolic dysfunction, toxicity, degenerative brain disease, demyelinating disease, malformations, cerebral vascular disease, convulsive disorders, and neoplasms. Each etiological condition may produce unique and identifiable behavioral consequences. Brain damage may produce general and/or specific intellectual deficit, as well as personality manifestations. Psychometric instruments are used for the gross screening, lateralization, and localization of brain damage. Important goals of neuropsychological diagnosis in children are: the discovery of pathological organic states and the identification of the relationship between specific pathological conditions and specific behavior syndromes; the identification of progressive brain damage for possible medical intervention; and the construction of profiles of abilities and deficits which can be used to design realistic educational programs. A neuropsychological diagnostician requires a careful developmental history, and specific information regarding: head injuries; behavior following a head injury; occasions of ingestion of toxic substances; occasions of prolonged nausea and vomiting, which did not appear to be related to eating habits or emotional upset; periods of high body temperature; and sudden changes in levels of energy expenditure. The present inadequacy of normative child development data and the problem of minimal brain damage complicate clinical neuropsychological investigation. (27 refs.) - *J. K. Wyatt.*

1677 McDONALD, CHARLES W. Neurological organization: An evaluative review of the theories and procedures of Doman and Delacato. In Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., The Council for Exceptional Children, 1968, p. 211-245.

The work of Doman and Delacato at the Institutes for the Achievement of Human Potential has focused on the treatment of the source, rather than the symptoms of brain injury, and on the treatment of children who are truly brain-injured, in that they have suffered injuries to a brain which was presumed to have been perfectly good at conception. Patients are directly treated in 1 of the institutes: The Children's Evaluation Institute; The Institute for Neurological Organization; or The Institute for Reading Disabilities. The theory of Doman and Delacato is based on the biogenetic law that ontogeny recapitulates phylogeny. A model of neurological organization which juxtaposes the phylogenetic development of the nervous system and its significant functions with the ontogenetic development of an individual is used to diagnose and prescribe remedial procedures. At the initial evaluation, the neurological age of a patient is estimated by evaluating brain function in the areas of mobility, language, manual competence, visual competence, auditory competence, and tactile competence. The broad treatment categories of the institutes are surgical treatment of the brain, and nonsurgical treatment of the brain based on principles of neurological organization. The basic principles which govern nonsurgical treatment of brain injury are based on the premise that the brain functions to relate the organism to its environment. These treatment principles include: procedures which supply basic discrete bits of data to the brain for storage; procedures which program the brain; procedures which demand an immediate response from the brain to a basic discrete bit of data which has just been supplied to it; procedures which allow the brain to respond to earlier programing; and procedures which improve the physiological environment in which the brain functions. (5 refs.) - *J. K. Wyatt.*

1678 The Doman-Delacato treatment of neurologically handicapped children. *Journal of Pediatrics,* 72(5):750-752, 1968.

Controversy over the theory of the Institutes for Achievement of Human Potential and their affiliates has prompted an official statement from several organizations for MR or handicapped children. Reasons for concern

are: promotional methods which pressure parents; demanding and inflexible regimens which lead to the neglect of other members of the family; claims made for rapid and conclusive diagnosis; and undocumented cure claims. Parents and professional workers are advised to acquaint themselves with the issues of the controversy. (41 refs.)
M. L. Wiltshire.

1679 MEYER, WILLIAM J. Cerebral dysfunction. In: Johnson, G. Orville, & Blank, Harriett D., eds. *Exceptional Children Research Review.* Washington, D. C., The Council for Exceptional Children, 1968, Chapter 5, p. 181-209.

Although there has been considerable recent interest in the "minimal brain damage" syndrome, this syndrome primarily refers to a particular pattern of behavior, the etiology of which is not clearly understood. There appears to be a relationship between perinatal anoxia and general behavioral dysfunction. Research studies indicate that: behavioral deviations, some of which are maintained over 5 or 6 years, are apparent as early as 3 months; certain aspects of these behavioral deviations are overcome within 3 to 4 years after birth; major behavioral dysfunctions occur in the integrative functions which involve both higher order verbal conceptualizations and perceptual motor abilities; and visual motor dysfunctions appear later than vocabulary dysfunctions and persist until a later age. Diagnostic procedures for identifying brain injury are at an early stage of development and are hampered by problems of determining the locus of the damage, by the necessity of differentiating organic pathology from normal development and/or environment effects, and by the variability of the behavior patterns exhibited by brain-injured children which renders labeling based on psychological tests and/or behavior observations tenuous. Remediation programs for children with cerebral dysfunction need to be systematically evaluated. The procedures and materials proposed by Kephart appear to hold considerable promise. (18 refs.) - *J. K. Wyatt.*

Diseases or Disorders of Metabolism, Growth, or Nutrition

1680 HSIA, DAVID YI-YUNG, BERMAN, JULIAN L., JUSTICE, PARVIN, NADLER, HENRY L., & O'FLYNN, MARGARET E. Metabolic disorders associated with mental retardation. *Pediatric Clinics of North America,* 15(4):889-904, 1968.

Elucidation of specific biochemical defects associated with MR has enabled a more rational approach to their management. Phenylketonuria and a recently described syndrome of hyperuricemia, self-biting, chorioathetosis and MR, are cited as examples of specific enzymatic defects responsible for MR. In a number of metabolic errors, analysis of biopsy material, serum, and urine have been of value in detecting the heterozygous carrier state. Three methods have come into use for screening newborns for metabolic defects: bacterial "inhibition assay," paper chromatography of blood and urine, and analysis of the specific biochemical content of urine and blood. The first method has its widest use in detecting elevated phenylalanine levels in general, whether associated with phenylketonuria or not, and including those with transaminase deficiency. Paper chromatography has been useful only in detecting PKU and maple syrup urine disease. The use of leucocytes and fibroblasts has been proven to demonstrate biochemical defects better than erythrocytes, and is a better indicator of the heterozygous carrier. The recent discovery of the tendency to cloning of fibroblasts from female heterozygotes who carry X-linked traits has been of real value in investigating G-6-PD deficiency and the Hunter and Hurler syndromes. Clinical management of inborn errors consists chiefly of diet modification. Controlled studies on the value of low phenylalanine diet for PKU are rare; however, no study to date has disproved a beneficial dietary effect on the IQ of Ss with PKU, especially those started at an early age in life. The pathogenesis of MR is an area of much needed study. (29 refs.)
L. E. Clark.

1681 HSIA, DAVID YI-YUNG. *Inborn Errors of Metabolism. Part 1: Clinical Aspects.* Chicago, Illinois, Year Book Medical Publishers, 1966, 396 p. $12.00.

Clinical aspects of inborn errors of metabolism are discussed in relation to their genetics and metabolic origins. In the understanding of abnormal metabolism, it is important to understand the biochemistry of normal metabolism and advances in methodology in the past 10 years now permit genetic studies on a molecular basis. The physician with a patient suspected of having an inborn error of metabolism can now test for specific disorders with highly sophisticated laboratory procedures. The major abnormal metabolism syndromes and many minor syndromes are listed and for each disorder, clinical symptoms, probable etiology, genetic probabilities, and recommended treatment are described. References for each subsection should prove extremely helpful and interesting to those investigators wishing to explore these fields. Biochemists, pediatricians, geneticists, and physicians should find this book extremely useful. (798 refs.) - *K. Drossman.*

CONTENTS: General Considerations; Biochemical Variations in Normal Human Beings; The Hemoglobinopathies; Serum Protein Deficiencies; Enzyme Defects; Disturbances in Transport Mechanisms; Disturbances in Lipid Metabolism: The Porphyrias; Hereditary Myopathies; Miscellaneous Disturbances; and Clinical Application of Concept of Inborn Errors of Metabolism.

1682 HSIA, DAVID YI-YUNG, & INOUYE, TOHRU. *Inborn Errors of Metabolism. Part 2: Laboratory Methods.* Chicago, Illinois, Year Book Medical Publishers, 1967, 244 p. $7.50.

Laboratory methods utilized in the diagnosis of inborn errors of metabolism are detailed and correlated with part 1 of "Inborn Errors of Metabolism." Included are basic procedures such as spectrophotometry, zone electrophoresis, chromatography, immunoelectrophoresis, and enzyme assays; however, methods of identification of hemoglobin variants and blood clotting factors are not included. The biochemical tests described require a high degree of competence and an advanced knowledge of clinical and biochemical techniques. Each procedure list (144 total) is followed by a list of references which should enable interested persons to pursue a more extensive investigation of the biochemical aspects of these metabolic disorders. Physicians and laboratory technicians should find this book quite useful, especially if used in conjunction with part 1 which gives the clinical aspects of these diseases. (318 refs.) *K. Drossman.*

1683 HSIA, DAVID YI-YUNG, & O'FLYNN, MARGARET E. Hereditary metabolic disorders. In: Shirkey, Harry C., ed. *Pediatric Therapy.* Third edition. St. Louis, Missouri, C. V. Mosby, 1968, Chapter 98, p. 759-779.

Various approaches in the therapy of hereditary metabolic diseases are reviewed. Treatment by supplying the deficient factor is helpful in the hemophilias, hypoprothrombinemias, in afibrinogenemia, analbuminemia, immune globulin disturbances, adrenogenital syndrome, familial goiter, and vitamin B_6 disease states. Metabolic disorders treated by eliminating certain foods and drugs include conditions precipitated by ingestion of certain specific foods and drugs (glucose-6-phosphate dehydrogenase deficiency, esterase deficiency, isoniazid inactivators, and hyperkalemic familial periodic paralysis) and diseases that can be treated by eliminating specific foods (idiopathic hyperlipemia, primary hypercholesteremia, hereditary deficiency of intestinal disaccharidases, hereditary infantile lactose intolerance, monosaccharide intolerance, phenylketonuria, galactosemia, and nephrogenic diabetes insipidus). Treatment by use of an alternate metabolic pathway is applicable to hereditary methemoglobinemia, where administration of methylene blue results in the rapid conversion of methemoglobin to hemoglobin. Such compensatory forms of treatment as transfusions, use of water, splenectomy, vitamin D therapy, glucose, and drug therapy are useful in treating sickle cell anemia, hereditary spherocytosis, Gaucher's disease, cystinuria, resistant rickets, leucine-induced hypoglycemia glycogen storage disease, gout, and Wilson's disease. Supportive therapy is of value in the treatment of alkaptonuria, albinism, acatalasemia, infantile Gaucher's disease, Niemann-Pick disease, Tay-Sachs disease, and progressive muscular dystrophy. (108 refs.) *M. G. Conant.*

1684 STERNLIEB, IRMIN, & SCHEINBERG, I. HERBERT. Prevention of Wilson's disease in asymptomatic patients. *New England Journal of Medicine,* 278(7):352-359, 1968.

A biochemical diagnosis of Wilson's disease was established in 53 asymptomatic Ss, ranging in age from 15 months to 31 years. None

had any pathognomonic physical sign of the disease. In 36 of these patients a liver biopsy specimen was examined by light microscopy, and in 31 histologic changes were found. Forty-two of these patients have been treated with a de-copperizing regimen, based on the continued and daily administration of D,L-penicillamine or D-penicillamine, and have remained asymptomatic during a period of observation of 142 patient years. An estimate, based on the natural history of Wilson's disease in 121 symptomatic patients, suggests that during this interval symptoms of the disorder could have been expected to develop in at least 8 of these Ss. (37 refs.) *Journal abstract.*

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1685 WILLIAMS, ROGER, & TOGHILL, P. J. The widening spectrum of neurological damage in liver disease. *Postgraduate Medical Journal*, 44(508):173-177, 1968.

Cerebellar and extrapyramidal disorders (choreoathetosis, tremor, and myoclonus) and dementia are the most common neuropsychiatric manifestations of severe liver disease, but pyramidal system disorders, myelopathy, peripheral neuropathy, retrobulbar neuritis, and the Guillain-Barre syndrome may also occur. The differentiation of this hepatic encephalopathy from Wilson's disease and sequelae of chronic alcoholism without cirrhosis may depend upon the neuropathological characteristics of the former--an increase in the size and number of protoplasmic astrocytes and patchy vacuolar degeneration and necrosis of nerve cells deep in the cerebral cortex. The biochemical insult to the brain is uncertain but ammonia intoxication is at least partially responsible. Treatment approaches such as dietary protein restriction, alteration of the bacterial flora of the bowel, exchange transfusion, and extracorporeal hepatic perfusion may all produce dramatic improvement in the neurologic and psychiatric picture, but without functioning hepatic cells, full recovery is impossible. (35 refs.) - *E. L. Rowan.*

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1686 BOUDIN, G., PEPIN, B., MILHAUD, M., JEROME, H., & PACILLY, A. Etude anatomoclinique d'un cas de maladie de Wilson traitee par les chelateurs pendant cinq ans (Anatomical-clinical study of a case of Wilson's disease treated by chelation for five years). *Revue Neurologique*, 118(1):27-35, 1968.

A 21-year-old female patient with Wilson's disease, treated for 5 years with chelating compounds was clinically neurologically normal during the treatment period. She had had positive signs of Wilson's disease including development of Kayser-Fleischer rings, extrapyramidal hypertonia, poor facial movements, Babinsky reflex, amenorrhea, and other neurological defects. Penicillamine administration caused a remission of neurological signs; however, the drug was discontinued and replaced by sodium diethyldithiocarbamate. Splenectomy became necessary due to persistent splenomegaly and death subsequently occurred from hepatic insufficiency. Histological copper assays after death revealed that the copper count was within normal limits and had been controlled by the chelating action of penicillamine and sodium diethyldithiocarbamate. (13 refs.) *M. T. Lender.*

No address

1687 KISSEL, P., SCHMITT, J., & DUPREZ, A. Forme abdominale de la maladie de Wilson. Detection du cuivre dans les tissues par la fluorescence X (Abdominal form of Wilson's disease. Detection of copper in tissues by X fluorescence). *Revue Neurologique*, 118(5):379-389, 1968.

A 15-year-old boy with familial Wilson's disease was found on autopsy to have 11 times the normal amount of copper in his liver and 1.8 times the normal amount of copper in his brain, as determined by X fluorescence techniques. Histochemical methods were used in conjunction with scintillation counting to assay for copper. The large amount of copper found in the S's liver suggests a slow copper build-up and that the element must reach a toxicity threshold before death occurs. When this threshold is reached, death apparently follows very abruptly; therefore, Wilson's disease patients should be closely watched so as to maintain copper storage at a minimal level. (2 refs.) - *M. Drossman.*

No address

1688 SARDHARWALLA, I. B., JACKSON, S. H., HAWKE, H. DAWN, & *SASS-KORTSAK, A. Homocystinuria: A study with low-methionine diet in three patients. *Canadian Medical Association Journal*, 99(15):731-740, 1968.

The clinical and laboratory findings in 3 patients with homocystinuria who are members of 1 sibship are presented. After the achievement of satisfactory biochemical control with a low-methionine diet, oral loading with a single dose of 100 mg/kg L-methionine resulted in a rise of plasma levels of methionine, homocystine, and homocysteine--cysteine disulphide (HCD) which returned to the baseline values after 5 to 7 days in the 2 patients so tested. By carefully controlled restriction of methionine in the diet and supplementation with cystine it was possible: to achieve a sustained normal plasma level of methionine and cystine; to bring about the virtual disappearance of homocystine from the plasma; and to reduce greatly HCD levels in both plasma and urine. These effects of the therapeutic diet were maintained for an 8 to 9 month period. (19 refs.) - *Journal summary.*

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1689 KELLY, SALLY, & COPELAND, WILLIAM. A hypothesis on the homocystinuric's response to pyridoxine. *Metabolism: Clinical and Experimental*, 17(9):794-795, 1968.

Amino acid assays performed on 24-hour urine samples from a 14-year-old homocystinuric before and after 3-week therapy with pyridoxine in addition to a year's treatment with penicillamine demonstrated that an alternate pathway to cystine formation may become operational when vitamin B_6 is supplied in the diet. The alternate pathway involved the formation of homolanthionine as an intermediate product. Clinical improvement during the pyridoxine therapy was noted by the S's parents with the S showing more alertness, improved behavior, and an improved asthmatic condition. (9 refs.) *M. Drossman.*

Division of Laboratories and Research
New York State Department of Health
Albany, New York

1690 PARTINGTON, M. W. Case-finding in phenylketonuria: III. One-way paper chromatography of the amino acids in blood. *Canadian Medical Association Journal*, 99(13): 638-644, 1968.

Laboratory experience with a simple method for the semi-quantitative assessment of amino acids by 1-way paper chromatography is presented. This method made it possible to distinguish between patients with untreated phenylketonuria and normal Ss with a specificity of 97.9% and a sensitivity of 100%. Chromatography was carried out on plasma samples whose phenylalanine and tyrosine levels had previously been measured by independent biochemical methods. The relations between the chromatographic scores, the plasma levels of the amino acids, and the proportions of false positive and false negative results were studied. An inverse relation between the percentages of false positives and false negatives was found. (32 refs.) - *Journal summary.*

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1691 CASTELLS, SALVADOR, & *BRANDT, IRA K. Phenylketonuria: Evaluation of therapy and verification of diagnosis. *Journal of Pediatrics*, 72(1):34-40, 1968.

Twelve phenylketonuric children (CA 10 to 48 mos) who had been on a phenylalanine-low diet since 2 months of age or less, were studied in order to observe the effects of the diet on growth and development. PKU was confirmed in each child by phenylalanine loading and assays for plasma tyrosine. In no case did the tyrosine levels become significantly elevated. All of the children were height-retarded (below the fiftieth percentile), had normal electroencephalograms, were within normal limits on the Vineland Social Maturity Scale and Cattell Infant Intelligence Scale, were radiographically normal (except in 1 case), and had normal values in other clinical tests. All but 1 patient demonstrated elevated plasma phenylalanine after receiving a normal diet for several days. The psychological and mental effects of the phenylalanine-low diet were encouraging; however, as several growth retardation cases appeared to be correlated

with a plasma phenylalanine level below 3 mg/100 ml, it is suggested that the plasma phenylalanine be maintained above this level. (13 refs.) - *M. T. Lender.*

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1692 INOUYE, TOHRU, JUSTICE, PARVIN, & HSIA, DAVID YI-YUNG. Cerebroside metabolism in experimental phenylketonuria and galactosemia. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 24 p. 339-357.

The *in vitro* incorporation of labeled hexoses (glucose and galactose) into brain glycolipids and their conversion to labeled carbon dioxide by brain tissue of maturing normal guinea-pigs and rats and experimentally produced phenylketonuric guinea-pigs and galactosemic rats were investigated. Guinea-pigs with 6% L-phenylalanine added to their diet had a lower body weight:brain weight ratio than controls; however, no differences between the 2 groups were observed in cerebroside content at various ages and in *in vivo* and *in vitro* incorporation of labeled serine and galactose. This suggests that addition of phenylalanine to the diet does not offset the enzymes for biosynthesis of glycolipids. Pregnant rats from mid-term were maintained on a normal diet or with 20% added galactose. Rats from both groups showed similar increases in brain weight upon maturation, similar *in vitro* production of labeled carbon dioxide from the labeled hexoses, and similar incorporation of hexoses into glycolipids, with an elevated rate of incorporation of labeled glucose into cerebrosides observed during the first neonatal week. Rats on the galactose-rich diet showed suppression of labeled glucose incorporation and a slight increase in labeled galactose incorporation. The results suggest that cerebroside synthesis in rats may be affected by high levels of galactose in the diet. (30 refs.) *M. G. Conant.*

1693 KELLY, SALLY, & COPELAND, W. Amino acid patterns in cystinuric families. *Journal of Medical Genetics,* 5(4):281-285, 1968.

Three cystinuric families were studied in an attempt to classify the 35 members into the 3 types (of Rosenberg) through urinary characteristics only, and to evaluate the excretion of cysteine-homocysteine as a characteristic of heterozygote carriers. Urine samples were collected from 30 non-stone formers and 5 stone formers, and examined for amino acids and disulphides. Stone formers and some non-stone formers were found to have positive nitroprusside reactions. Carriers of Type III could be identified by intermediate excretions in 1 family. Another family did not exhibit abnormal excretion in carriers and was considered to have Type I. Type I and Type III were found in a third family with double heterozygote sons, a carrier daughter, and carrier parents. The biochemical tests allowed the tracing of Type III through 4 generations in 1 family. Homocitrulline and citrulline studies were not useful in the ascertainment of phenotype, but the interpretation of cysteine-homocysteine excretion rates was adopted for use in carrier identification. (29 refs.) - *M. T. Lender.*

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1694 ZITER, F. A., *BRAY, P. F., MADSEN, J. A., & NYHAN, W. L. The clinical findings in a patient with nonketotic hyperglycinemia. *Pediatric Research,* 2(4):250-253, 1968.

The case of a male infant with hyperglycinemia (11.3 mg/100 ml plasma; control value of 0.65±0.23 mg/100 ml), generalized seizures, and lethargy, but without acidosis or hematologic abnormalities, is described. At 2.5 months of age, the patient was placed on a 1% soybean protein formula with 2 g sodium benzoate/day and 600 mg acetylsalicylic acid/day added to bind glycine. A pneumoencephalogram at 3 1/2 months revealed slight ventricular dilatation. At 33 months, the patient showed irritability, a good nutritional state, borderline microcephaly, severe MR, hypotonia, and hyporeflexia. It is suggested that earlier institution of special dietary therapy might reduce the severity of the neurological damage. (12 refs.) - *M. G. Conant.*

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1695 FARRIAUX, J. P., ADAM, E., DAUTREVAUX, M., GOSSELIN, B., & FONTAINE, G. Difficulties d'interpretation d'une aminoacidurie pathologique (Difficulties in interpretation of a pathologic aminoaciduria). *Acta Paediatrica Belgica*, 22(1):5-28, 1968.

Case material from a 7-month-old infant is presented to illustrate the difficulties encountered in arriving at a diagnosis in a pathological aminoaciduria. The patient showed retarded psychomotor development with spasms and generalized hypertonia and a transitory positive reaction to iron perchloride. Metabolic studies disclosed a hyperphenylalaninemia and phenylalaninuria, with unaffected excretion of phenylpyruvic acid, cystathioninuria, and hypermethioninuria. The urine, which darkened spontaneously upon standing, contained an unidentified ketonic acid. After death (caused by diarrhea with major biological disturbances), an autopsy revealed hepatic steatosis and cytosteatonecrosis lesions with an acute interstitial pancreatitis. The diagnosis arrived at was a severe heterozygous form of phenylketonuria with secondary cystathioninuria; death was caused by primitive interstitial pancreatitis producing hepatic steatosis and hypermethioninuria. The importance of considering all biological evidence before making a diagnosis is stressed. (27 refs.) - *M. G. Conant.*

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1696 PRENSKY, ARTHUR L., CARR, SHEILA, *MOSER, HUGO W. Development of myelin in inherited disorders of amino acid metabolism. *Archives of Neurology*, 19(6):552-558, 1968.

The suggestion that the formation of central nervous system myelin is delayed in untreated cases of phenylketonuria (PKU) and maple syrup urine disease was studied by comparison of the frontal cerebral white matter of 10 patients who died from various amino acid metabolism disorders and 9 matched controls. Results show that the water content of patients with amino acid metabolism disturbances was slightly elevated. Proteolipid was decreased in all cases of PKU and maple syrup urine disease. Since proteolipids are synthesized most rapidly during infancy, a restriction of amino acid transport into the brain during this critical period could limit the formation of this myelin constituent. It was concluded that in patients with PKU and maple syrup urine disease myelin synthesis was delayed or decreased and this corroborates previous reports of pallor in central white matter sections stained for myelin in PKU and maple syrup urine disease. (38 refs.) - *W. Asher.*

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1697 NYHAN, WILLIAM L., SWEETMAN, LAWRENCE, CARPENTER, DONALD G., CARTER, CHARLES H., & HOEFNAGEL, DICK. Effects of azathioprine in a disorder of uric acid metabolism and cerebral function. *Journal of Pediatrics*, 72(1):111-118, 1968.

Three children with hyperuricemia and cerebral dysfunction and 1 adult with gout were treated with azathioprine (an immunosuppressive 6-mercaptopurine derivative). The patients were on a purine-low diet and received azathioprine at the rate of 4 mg/kg body weight/day, and uric acid was determined by enzymatic spectrophotometry. Hematological responses also were studied. The adult's usual plasma uric acid levels were in the range of 9-11 mg/100 ml and decreased to 5 mg/100 ml after 18 days of treatment. levels rose again to the 9-11 mg/100 ml range 9 days after treatment ceased. The uric acid plasma levels in the 3 children showed inconsistent decreases, but also showed some significant increases which resulted in levels which were higher than the pretreatment levels. Hematological studies on the adult patient revealed bone marrow suppression indicated by decreases in white blood cells, polymorphonuclear leukocytes, platelets, and hemoglobin levels, during and after treatment, which returned to normal within about 7 weeks. There were no significant blood responses in the 3 children and no bone marrow toxicity. The results indicate that azathioprine is converted first to 6-mercaptopurine and then to its ribonucleotide. (12 refs.) - *M. T. Lender.*

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1698 RODRIGUEZ-SORIANO, JUAN, HOUSTON, IAN B., BOICHIS, HAYIM, & EDELMANN, CHESTER M., JR. Calcium and phosphorus metabolism in the Fanconi syndrome. *Journal of Clinical Endocrinology and Metabolism*, 28(11):1555-1563, 1968.

Calcium and phosphorus balance studies were performed in a child with hypophosphatemic rickets secondary to the Fanconi syndrome. Evidence was obtained of a normal capacity for intestinal absorption of calcium and phosphorus. The data indicated that an increased renal clearance of phosphate with resultant hypophosphatemia was the major determinant in the failure of normal bone formation. This tubular abnormality was corrected by administration of large amounts of vitamin D, but was not influenced by acute hypercalcemia, pointing to a primary tubular defect in reabsorption of phosphorus. Renal excretion of calcium was unrelated to intestinal calcium absorption and was increased despite the presence of alkalosis. The close correlation found between rates of urinary excretion of calcium and sodium suggested a mechanism for the variation in calcium excretion reported in this syndrome. (41 refs.) - *Journal abstract.*

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1699 ARONSON, STANLEY M., & VOLK, BRUNO W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, 513 p. $20.00.

Studies relative to clinical, pathological, ultrastructural, biochemical, and genetic aspects of diseases of sphingolipid metabolism and related syndromes are presented. Included are: clinical findings in cases of Tay-Sachs disease, Niemann-Pick disease, and lipogranulomatosis; laboratory techniques in the diagnosis of Niemann-Pick disease, gargoylism, and metachromatic leukodystrophy; and combined clinical and morphological approaches used in the study of such rare disorders as leukodystrophy associated with adrenal insufficiency and melanoderma, spongy degeneration (which clinically resembles Tay-Sachs disease), and Batten's disease (the nosology of which is still in dispute). Electron microscope findings are valuable in differential diagnosis, as are biochemical studies on N-acetylneuraminic acid and the structure and metabolism of gangliosides. No structural differences between the stored ganglioside in Tay-Sachs disease and its counterpart in normal brain were seen; therefore, the defect in this disorder may be in a catabolic enzyme. No cerebroside accumulation was found in infantile Gaucher's disease, in experimental phenylketonuria, or galactosemia. Procedures for the diagnosis of lipidosis and the determination of neuraminic acid are reported. Genetic contributions include considerations on reproductive fitness and selection in Tay-Sachs disease and detection of the heterozygous carrier by red blood cell changes, leukocytic hypergranulation, and cell culture procedures. These reports should be valuable reading for biochemists, geneticists, neurologists, physicians, and pediatricians. (839 refs.) - *M. G. Conant.*

CONTENTS: Morphological Studies; Biochemical Studies; and Genetic and Clinical Studies.

1700 BOGOCH, SAMUEL, & BELVAL, PETER. Brain proteins in the sphingolipidoses: Tay-Sachs disease protein. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 19, p. 273-287.

Brain proteins in the gray matter from cases of Tay-Sachs disease and Spielmeyer-Vogt disease and from 7 normal controls were extracted and analyzed by column chromatography, carbohydrate analysis, and disc gel electrophoresis. A protein designated as Tay-Sachs disease protein (10 B) was markedly increased (5 times normal) in the case studied and on disc gelelectrophoresis, the major component was shown to be a front-running protein. This quantitative increase may be due to a new protein or to an increased concentration of a normal protein. Increases in nondialyzable sialic acid and hexose associated with protein were noted in both sphingolipidoses studied. The electrophoresis pattern also showed an indication of maturational differences in brain protein with less heterogeneity in the normal child in group 8B and more in group 10B than in the adult. (12 refs.) - *M. G. Conant.*

1701 LEDEEN, ROBERT, SALSMAN, KENNETH, & CABRERA, MARIA. Structural studies of the Tay-Sachs ganglioside and its normal brain counterpart. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 14, p. 231-240.

Tay-Sachs ganglioside and its asialoganglioside and hematoside derivatives, resulting

from removal of terminal *N*-acetylneuraminic acid and *N*-acetylgalactosamine, respectively, were subjected to periodate oxidation followed by borohydride reduction and the products were identified by paper chromatography. From these findings, the structure of Tay-Sachs ganglioside was elucidated, exclusive of stereochemistry. Comparative studies with normal brain counterparts showed a similar sequence for the 6-carbon sugars and fatty acid analysis showed lowered stearate and arachidate levels, elevated palmitate levels, and absence of unsaturated fatty acids longer than C_{18}. The ceramide-monohexoside fraction from the partial hydrolysis had 2 components, whereas only 1 was visible from the Tay-Sachs brain. Normal brain G_5 was much more difficult to purify, suggesting the presence of macro-molecular complex containing other lipids in addition to ganglioside. (18 refs.) *M. G. Conant.*

1702 MYRIANTHOPOULOS, NTINOS C., & ARONSON, STANLEY M. Reproductive fitness and selection in Tay-Sachs disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 30, p. 431-441.

Genetic and epidemiologic data on 194 families (388 sibships and 1,244 total siblings) of Jewish Tay-Sachs disease (TSD) cases were compared with data from a Jewish control sample of 812 sibships (2,848 total siblings) representative of urban and suburban northeastern United States. The concentration of TSD genes was greatest in Jews whose grandparents came from the regions of south Lithuania (Kovno) and the adjacent provinces of Suwalki and Grodno, while the large east European cities contributed a smaller proportion of TSD grandparents. The fertility of Jewish women known to be carriers of the TSD gene was compared with the fertility of those homozygous for the normal allele by estimating the fertility (number of total births and of surviving offspring) of the grandparents of the TSD cases. Among U. S. born and non-U. S. born, the ratios of total siblings and of those surviving at age 21 between the TSD cases and the controls is in favor of the TSD heterozygote, with the greatest deviations occurring among the non-U. S. born. This potentiation of gene frequency could have been accomplished in about 300 years, but probably began during the first centuries of the diaspora. (8 refs.) *M. G. Conant.*

1703 BALINT, JOHN A., KYRIAKIDES, EMILIOS C., & SPITZER, HUGH L. On the chemical changes in the red cell stroma in Tay-Sachs disease: Their value as genetic tracers. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 29, p. 423-430.

Red blood cell sphingomyelin was determined in 25 members of 3 families with children afflicted with Tay-Sachs disease (TSD) as well as 11 unrelated normal controls and 4 unrelated children with TSD. Heparinized blood was extracted with 2:1 chloroformmethanol, the lipid extract was analyzed for total cholesterol and lipid phosphorus, and the phospholipids were separated and determined by thin layer chromatography. Sphingomyelin is significantly lower (in terms of absolute concentration and as percent of total phospholipids in children with TSD (19.8 ± 3.8% of phospholipids) than in normal Ss (28.9 ± 2.0%), while the parents had intermediate values (22.7 ± 4.9%). These results support the theory that the parents are heterozygous and carry 1/2 the abnormal gene pair. Both the afflicted children and the heterozygous carriers have significantly less phospholipids /100 ml red blood cells than controls and also had lower concentrations of lecithin and cephalins, expressed as micromole/100 ml red blood cells. (13 refs.) - *M. G. Conant.*

1704 KARACAN, I., SCHNECK, L., HINTERBUCHNER, L. P., & GROSS, K. The sleep-dream pattern in Tay-Sachs disease (preliminary observations). In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 28, p. 413-421.

The sleep-dream pattern, EEG pattern, chin muscle, heart rate, and penile erection in 12 infants (1-4 yrs of age) with Tay-Sachs disease were observed. With increasing age, there was an increase in mean sleep time (from 26% to 53%) and a decrease in mean rapid eye movement (REM) sleep time (from 25% to 0), suggesting a progressive degeneration in function of the mesencephalic reticular substance and impairment of the function of the pontine reticular substance in later stages. The EEG pattern differentiated sleep and waking stages in the youngest patients (1-2 yrs of age), but not in those in the terminal stages (3-4 yrs of age) and less spindle activity was seen in all patients, indicating degeneration in the thalamic

region. Respiratory and heart rate irregularities observed indicated an early impairment of the bulbar reticular formation while the occurrence of erections indicated that the erection center may be spared. There seems to be a positive relationship between the ontogenic evolution of Tay-Sachs disease and the disturbance of sleep pattern, especially REM sleep, as the disease progresses. (29 refs.) - *M. G. Conant.*

1705 PASCAL, THERESA A., SAIFER, ABRAHAM, & GITLIN, JOSEPH. Comparative studies of normal human and Tay-Sachs gangliosides--An immunochemical approach. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 20, p. 289-301.

The number of immunologic components involved in normal and pathological ganglioside-antiganglioside systems was studied by using a 2-directional agar gel-diffusion technique for obtaining precipitating antibodies. Gangliosides from beef and human (normal and Tay-Sachs) brain tissue were injected (as 1:1 mixture with Freund's adjuvant) into rabbits 1-3 times a week for 3 weeks. Precipitating antibodies were obtained in all rabbits injected with normal and Tay-Sachs gangliosides and in 6 out of 7 injected with beef gangliosides. The antiserum to normal human brain gangliosides produced 2-3 precipitin bands with the homologous antigen and 1 band with Tay-Sachs ganglioside, while the antiserum to gangliosides from Tay-Sachs brain only formed precipitin bands with Tay-Sachs ganglioside. Purified monosialoganglioside from Tay-Sachs brain did not react with antiserum to normal gangliosides, indicating insufficient amount of antibody or a structural difference. Cross absorption tests gave inconclusive findings as to antibody specificity. (14 refs.) *M. G. Conant.*

1706 ROSENBERG, ABRAHAM. The nature of the lipophilic portions of the brain gangliosides. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 18, p. 267-272.

Lipids were extracted from the whole brains of rats (in groups of 10), normal humans, and cases of Tay-Sachs disease and the gangliosides were purified chromatographically. Sphingomyelin and cerebrosides were isolated by thin layer chromatography, the fatty acid composition was analyzed by splitting off methyl esters, and the relative quantities of 18-carbon and 20-carbon sphingosine were determined by oxidation of sphingosine. In normal fetal and neonatal brains, as well as Tay-Sachs brain, the gangliosides contained more than 90% stearic acid, and in a normal 3-year-old brain, the stearic acid level decreased while that of palmitic acid increased to resemble levels in the normal adult brain. Normal fetal human brain and Tay-Sachs brain contained 18-C sphingosine almost exclusively and the level of 20-C sphingosine gradually increased in the normal brain to about 50% of the total sphingosine by 3 years of age. In the rat brain, the stearic acid level in all sphingolipids decreased with age, cerebrosides and sphingomyelin contained only 18-C sphingosine at all stages of growth, and, after 20 weeks, brain gangliosides contained equal amounts of 18-C and 20-C sphingosine. (21 refs.) - *M. G. Conant.*

1707 SCHNECK, LARRY, & VOLK, BRUNO W. Clinical manifestations of Tay-Sachs disease and Niemann-Pick disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 27, p. 403-411.

Observations of some visceral and neurological manifestations of Tay-Sachs disease (TSD) (21 cases) and Niemann-Pick disease (NPD) (8 cases) are summarized. By 4 months of age, TSD can be diagnosed on the basis of cherry-red macula, extension response to sound, hypotonia, elevated levels of serum glutamic oxaloacetic transaminase and lactic dehydrogenase, and decreased levels of fructose-1-phosphate aldolase. By 18 months of age, the EEG pattern is abnormal and primary or secondary hepatic involvement may be present. Hepatosplenomegaly and failure to thrive were noted in NPD by 6 months of age, with jaundice, diarrhea, and abnormal dentition sometimes observed. Motor deterioration, MR, seizures, and EEG abnormalities occur later in NPD than in TSD, but are otherwise similar. A significant decrease of serum alpha 2 globulin (paper electrophoresis using Tris buffer) and an elevation of serum glutamic pyruvic transaminase were observed. (18 refs.) - *M. G. Conant.*

1708 EDGAR, G. W. F., & VAN BOGAERT, LUDO. Anatomo-chemical study of the white matter in late infantile amaurotic idiocy. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 4, p. 75-89.

Pathological and biochemical findings in a study of nearly completely demyelinated hemispheral and diencephalic white matter from a case of late infantile amaurotic idiocy are presented. Extreme atrophy of the optic and fronto-occipital radiations occurred with the most serious lesions in the precuneus and the fusiform and parietal gyri. The nature of lipids present in the white matter was determined indirectly by comparing quantitative chemical data with staining and solubility characteristics of lipids in tissue sections from the same area. By using conventional techniques, it was shown that in this case and in 2 similar cases, the white matter contains both lipid products which reflect ordinary sudanophilic myelin breakdown and lipid complexes with staining properties similar to those of the stored substance in the ganglion cell. The former, brilliant red in sudan preparations, are soluble in cold acetone, while the latter are insoluble after 16 hours in chloroform-methanol at 37°. No evidence for overt accumulation of lipids in the white matter was found, but there may be masked accumulation of hexosamine-containing lipids and "sphingomyelin" (true sphingomyelin plus choline-containing plasmalogens) in the cortex and white matter, since demyelination and ganglion cell disappearance may decrease the quantity of these fractions, thereby masking an increase. Alternatively, the primary pathochemical factor may be an abnormality of the lipid-carrying cell protein. (29 refs.) *M. G. Conant.*

1709 DONAHUE, SHEILA, ZEMAN, WOLFGANG, & WATANABE, ITARU. Electron microscope observations in Batten's disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 1, p. 3-22.

Biopsy and/or autopsy tissue from the third right frontal gyrus of 8 patients with Batten-Spielmeyer-Vogt disease was fixed in osmium tetroxide and/or glutaraldehyde and examined using an electron microscope. Abnormal lipid accumulations were present in neuronal perikarya and appeared as dense osmophilic structures with granules and bands as the basic components, which fit the known structures of lipofuscin. It is proposed that the basic defect in Batten's disease is a profound metabolic defect resulting in accumulation of lipofuscin. This hypothesis is supported by the presence of small amounts of lipofuscin in the brains of adult cases of Batten's disease, by the severe cerebral atrophy, and by the occurrence of neuronal atrophy without abnormal lipofuscin accumulation. These findings strengthen the separation of Batten's and Tay-Sachs diseases. (39 refs.) *M. G. Conant.*

1710 DIEZEL, PAUL B., ROSSNER, JOHANNES A., KOPPANG, N., RITZHAUPT, PETER, & BARTLING, DIETER. Juvenile form of amaurotic family idiocy. A contribution to the morphological, histochemical, and electron microscopic aspects. In: Aronson, Stanley M. & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 2, p. 23-42.

Pathological, histochemical, and electron microscope findings in 7 cases of juvenile amaurotic idiocy indicate that the different forms of amaurotic idiocy are related but are morphologically and genetically different. The clinical features, which first appear at 5-7 years of age, include loss of vision, seizures, MR, retinitis pigmentosa, and disturbances in motor ability. Intensive lipid storage is seen in the motor nerve cells of the precentral gyrus, in the nerve cells of h_2 and h_3 in the hippocampus, and in the nerve cells of the nuclei of origin of motor cerebral nerves in the brainstem, suggesting that energy problems of nerve cell metabolism exist in this disorder. Histochemical studies indicate that the nerve cells store a mixture of lipids consisting of a bright yellow coarsely granular component and a finely granular component which contains acid glycosphingolipids with neuraminic acid and cholesterol. The latter, histochemically related to the storage material in Tay-Sachs disease, appear as lamellated bodies under the electron microscope, while the former appear as myelin-like bodies and resemble a lipo-pigment. The clinical, histopathological, histochemical, and electron microscope findings in lipidosis of English setters are identical with those of human juvenile amaurotic idiocy. (87 refs.) - *M. G. Conant.*

1711 ZEMAN, WOLFGANG, & STROUTH, JONAS C. Leukocytic hypergranulation versus lymphocytic vacuolization as markers for heterozygotes and homozygotes with Batten-Spielmeyer-Vogt disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 33, p. 475-484.

Leukocytic granulations are a more consistent, reliable, and conspicuous marker for the defective gene causing Batten-Spielmeyer-Vogt disease (BSV) in the heterozygote and occur more often in the homozygote than lymphocytic vacuolization. Peripheral blood smears were fixed in methanol and immediately stained by the Giemsa technique. The frequency of abnormal azurophilic leukocytic granulations was compared with that of lymphocytic vacuolization in 16 patients with BSV and 19 parents. Abnormal granulations were present in 13 of the patients and 18 of the parents, while 8 and 2, respectively, had vacuolated lymphocytes. The azurophilic granules are specific for patients with BSV and heterozygotes and differ morphologically from those observed in Tay-Sachs disease and from Alder's granulations. (4 refs.) *M. G. Conant.*

1712 LUSE, SARAH. The fine structure of the brain and other organs in Niemann-Pick disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 5, p. 93-105.

The inclusions in brain and viscera, observed by light and electron microscopy, in a 4-year-old male with Niemann-Pick disease (brain wt of 500 g at autopsy) are compared with those occurring in a child (2.5 yrs old at death) with cerebral ganglioside storage disease (GSD) and with those in the mouse foam-cell reticulosis mutant. In Niemann-Pick disease, foam-laden cells were seen in spleen, lymph nodes, bone marrow, lung, kidney, endothelium, and dorsal root ganglia. In the brain, the inclusions were irregular aggregates of small, dense lamellar forms surrounded by loosely arranged membranes and Schwann cytoplasm was involved in the storage process. In the case of GSD, the visceral lipid stored showed no morphological resemblance to that in the case of Niemann-Pick disease. However, in both cases, stored lipid was present in the visceral cells of Bowman's capsule and in endothelial cells, suggesting that lipid from the blood may be stored in the endothelium in both diseases. In the mouse, large foamy cells, identical at the light microscope level with those in Niemann-Pick disease, were observed. Dense inclusions, suggestive of lipid, and round to ovoid inclusions with a granular matrix were observed. (11 refs.) *M. G. Conant.*

1713 UHLENDORF, B. WILLIAM, HOLTZ, ALBERT I., MOCK, MICHAEL B., & FREDRICKSON, DONALD S. Persistence of a metabolic defect in tissue cultures derived from patients with Niemann-Pick disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 31, p. 443-453.

Phospholipids, in particular sphingomyelin, of diploid cell cultures derived from bone marrow, skin biopsies, and amnion of 5 patients with Niemann-Pick disease (NPD), 7 normal Ss, 2 patients with Gaucher's disease, and a homozygote and a heterozygote for Tangier disease, were analyzed by quantitative thin-layer chromatography. The tissue cultures were subjected to 1-27 subcultivations, with 3-52 weeks in culture in a growth medium consisting of Eagle's basal medium supplemented with non-essential amino acids, folinic acid, fetal calf serum, penicillin, streptomycin, and neomycin. The chromatographic system separated tissue culture-derived phospholipids into 9 components, with only sphingomyelin analyzed in detail. The mean percentages of phospholipid as sphingomyelin in NPD bone marrow and skin biopsies were 18.6 and 14.9, respectively, compared to 8.2 and 9.6, respectively in the normal controls. The mean percentage of phospholipid as sphingomyelin in NPD amnion was 14.1, compared to 8.4 in normal amnion. The cells from the 5 NPD patients contained 17.5% phospholipid as sphingomyelin, compared to 8.1 in the controls, while sphingomyelin content in the patients with other lipidoses was in the normal range. (21 refs.) - *M. G. Conant.*

1714 PHILIPPART, MICHEL, & MENKES, JOHN H. Isolation and characterization of the principal cerebral glycolipids in the infantile and adult forms of Gaucher's disease. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 26, p. 389-400.

The lipid profiles of the brains from a 20-month-old child with infantile Gaucher's disease and from a 49-year-old female with chronic Gaucher's disease were studied. Fatty

acids were determined by gas-liquid chromatography, the cerebrosides and sulfatides were isolated and analyzed, and the glycolipid structures were determined. In both cases, lipid composition in both gray and white matter was normal, no accumulation of cerebroside was found, the structure of cerebrosides and sulfatides was normal, and galactose was found in abundance. The small quantities of glycolipids stored intraneuronally in the case of infantile Gaucher's disease may only reflect the degree of myelination. No significant amounts of glucose were detected in the purified glycolipids. (23 refs.) - *M. G. Conant.*

1715 CROCKER, ALLEN C., COHEN, JONATHAN, & FARBER, SIDNEY. The "lipogranulomatosis" syndrome; review, with report of patient showing milder involvement. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 34, p. 485-503.

The 8 reported cases of the rare syndrome "lipogranulomatosis" have shown subcutaneous nodules, infiltration of the periarticular and synovial tissues, and varying degrees of visceral pathology, with death usually occurring by 2 years of age, due to inanition and infection. The soft tissues exhibit abundant granuloma formation with foam cells often present and distended neuronal bodies in the central and autonomic nervous systems. An unidentified glycolipid is accumulated in the cytoplasm of these abnormal bodies. A new patient is described, with appearance of symptoms at 3 years of age, mild progression to the present age of 6 years, freedom from nervous system involvement, and skin textural changes. The patient showed improved arthropathy during treatment with chlorambucil, an anti-granuloma alkylating agent. This case emphasizes the need for extending the clinical definition of this syndrome, since the neuropathologic handicap usually considered a basic feature of this disease is not present. (19 refs.) - *M. G. Conant.*

1716 SEITELBERGER, FRANZ, JACOB, HANS, & SCHNABEL, RALF. The myoclonic variant of cerebral lipidosis. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 3, p. 43-74.

Pathological, histochemical, and electron microscopical findings in 8 cases (CA 2-10 yrs) of the myoclonic variant of cerebral lipidosis (MVCL) are reported. The clinical syndrome includes grand mal seizures followed by psychomotor deterioration, bulbul disorders, blindness, extrapyramidal rigidity, severe dementia, and cachexia. Pathologically, generalized neuronal lipid storage with severe parenchyma loss and atrophy of the thalamus, cerebellum, basal pons, and spinal cord are found. Granular storage material, which is a protein-bound glycolipid with a high surface acid phosphatase activity, and spheroid material are found in nerve cells of the thalamus, the zona nigra of the substantia nigra, the dentate nucleus, the locus caeruleus, the inferior olives, and the nucleus subthalamicus. Under the electron microscope spheroid bodies corresponding to osmiophobic corpuscles with filamentous structures and few membranous cytoplasmic bodies are observed. MVCL, which is differentiated from cerebral lipidoses with ganglioside accumulation, involves the association of a lipid metabolism disorder with l in protein metabolism, producing spheroid bodies in biochemically responding nerve cell populations, with the location of the lesion causing the myoclonia. The Bielschowsky type of cerebral lipidosis may belong to the MVCL syndrome. (32 refs.) - *M. G. Conant.*

1717 WALLACE, BARBARA J., LAZARUS, SYDNEY S., & VOLK, BRUNO W. Electron microscope and histochemical studies of viscera in lipidoses. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 6, p. 107-120.

The fine structural changes found in biopsies of the liver, rectal wall, or lymph node in 8 children afflicted with Niemann-Pick disease (NPD) (2-yr-old male), acid mucopolysaccharidosis (AMP) (4-yr-old female), Gaucher's disease (GD) (16-yr-old male and 20-yr-old female), and Tay-Sachs disease (TSD) (4 children CA 10-24 mos) were studied using an electron microscope and compared with changes in the brain due to similar disease. Localization of acid phosphatase activity in liver and lymph node was also investigated. In NPD, cerebellar and liver inclusions varied strikingly from those of rectal mucosa cells, while in AMP, a difference between cytosomes of cerebellar neurons and viseral neurons was observed. In TSD, the neurons of Meissner's plexus contained many large granular bodies previously unreported in cerebral neurons. The absence of typical lysosomes in hepatic cells of NPD and AMP and the presence of unusual membranous bodies in TSD suggests the

possible involvement of hepatic lysosomes in the disease process. Gaucher bodies may also be involved lysosomically, since in GD, acid phosphatase activity is localized in these bodies. (21 refs.) - *M. G. Conant.*

1718 LANDING, BENJAMIN H., O'BRIEN, JOHN S., & WILCOX, LIANNE G. Luxol-dye staining in lipid storage diseases. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 7, p. 121-128.

The staining behavior of "Luxol" fast blue G, fast blue AR, fast blue ARN, and fast black L (diaryl guanidine salts of sulfonated azo dyes) was compared to those of "Luxol" fast blue MBS and MBSN (copper phthalocyanin dyes), sudan 4, and sudan black B. Test materials were frozen or paraffin sections of formalin-fixed tissue from patients with different hereditary lipid metabolism disorders (infantile Niemann-Pick disease, juvenile Niemann-Pick disease, Tay-Sachs disease, early juvenile amaurotic idiocy, Canavan's spongy degeneration of myelin, infantile Gaucher's disease, susceptibility to infection with pigmented liver histiocytosis, Hurler's disease, metachromatic leukodystrophy, and generalized gangliosidosis) and pure lipid fractions (human brain cerebroside, cerebroside sulfate, human gray matter serine, choline, and ethanolamine glycerophosphatides, and beef brain gangliosides) stained as spots on glass fiber filter paper. The staining behavior of the pure lipids differed greatly from those of the same lipid in tissue section, probably due to the presence of protein in the latter. The copper phthalocyanin "Luxol" dyes are better ganglioside stains than the sulfonated azo-dye "Luxols" and, in general, central nervous system myelin stains stronger than peripheral nerve myelin. In paraffin sections, Tay-Sachs cells stained stronger than those of generalized gangliosides with all dyes and in the same disease, myenteric plexus neurons stained stronger than in the other neural lipidoses. "Luxol" fast blues AR, ARN, and G gave relatively selective staining of the myelin tracts of the central nervous system, under the test conditions. (17 refs.) *M. G. Conant.*

1719 ADACHI, MASAZUMI, & ARONSON, STANLEY M. Studies on spongy degeneration of the central nervous system (van Bogaert-Bertrand type). In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 8, p. 129-147.

Pathological features of 2 cases of spongy degeneration of the central nervous system (CNS) are discussed, and the efficacy of stannous intoxication as a model for this disorder was investigated. Both cases (Jewish females CA 26 mos and 57 mos at death) had megalencephaly and the cerebral tissue showed widespread vacuolation of tissue, especially in the subcortical white matter. Loss of myelin was most extreme in both occipital lobes and Alzheimer type II astrocytes were abundant in the cortex and subcortical white matter. Neuronal degeneration was not noted. Vacuolation in the cerebellum was most prominent between the granular and Purkinje cell layer and neuraminic acid concentration in tissue of the CNS was normal. One of the consistently noted features in spongy degeneration is megalencephaly, with the ratio of brain weight to normal averaging 1.55 in cases terminating within the first 20 months of life and approaching unity if the duration is longer than 20 months. This progressively diminishing megalencephaly, unlike that in Tay-Sachs disease which commences after other pertinent symptoms, may be correlated with the degree of demyelination. Twelve young adult rabbits were injected intraperitoneally with 1 mg/kg/day of triethyl tin sulfate in 5 ml normal saline solution and cerebral tissue samples obtained 1-6 days after commencement of the injections were compared with those from rabbits injected with only normal saline. The subcortical white matter of the test animals showed vacuolation similar to that in humans, with the vacuoles present within the myelin sheaths, while vacuoles in the deeper cortical laminae were in the increased astrocytic cytoplasm. Spongy degeneration and sphingolipidosis do not seem to be generally associated. (44 refs.) - *M. G. Conant.*

1720 AGUILAR, MARY JANE, O'BRIEN, JOHN S., & TABER, PADDY. The syndrome of familial leukodystrophy, adrenal insufficiency, and cutaneous melanosis. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 9, p. 149-166.

Three cases of familial leukodystrophy with adrenal insufficiency and cutaneous melanosis (LAM) are detailed and the findings are discussed with respect to classification of this

syndrome. Case 1 showed Addison's disease and melanoderma at age 4, with onset of neurologic symptoms and death at age 10. Case 2, the brother of Case 1, showed Addison's disease and melanoderma at age 5, with the appearance of neurologic symptoms at 9.5 years and death at age 11.5. Case 3, who experienced an adrenal crisis at age 10 and died at age 15, was reported in early life to have an IQ of 137, but at age 13, it was estimated to be 53. In each case, the pathology included leukodystrophy and adrenal atrophy. A lipid analysis on white matter from Case 1 by column chromatography revealed a nearly normal lipid concentration, despite almost total destruction of white matter, no accumulation of cholesterol esters, and small deficiencies of long-chain cerebrosides and ethanolamine and serine plasmalogens. The pertinent features of the 3 cases presented and 13 others previously reported suggest that the LAM syndrome is a separate demyelinating disorder because it is inherited in a sex-linked recessive mode, is manifested with Addison's disease, is of late onset, and shows no accumulation of cholesterol esters. It seems possible that the enzymic defect in LAM leading to demyelination may also result in Addison's disease. (19 refs.)
M. G. Conant.

1721 SVENNERHOLM, LARS. The metabolism of gangliosides in cerebral lipidoses. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 10, p. 169-186.

Gangliosides and related neutral glycolipids in the brain of children with Gaucher's disease, Tay-Sachs disease, Krabbe's disease, and metachromatic leukodystrophy were isolated, quantitatively determined, and their catabolism studied. Brain homogenates were incubated with various pure gangliosides and after 24 hours, the lipids were extracted, the gangliosides separated by chromatography, the remaining lipids subjected to mild alkaline hydrolysis, and the gangliosides and neutral glycolipids separated by thin layer chromatography. From the *in vitro* degradation studies, *N*-acetylneuraminic acid (NANA) is bound to galactose in position 3 or to NANA in position 8. The fatty acid patterns of the different cerebral gangliosides were very similar, suggesting a metabolic interrelationship. In infantile Gaucher's disease, increased amounts of monosialoceramide-trihexosides (G_{M2}) and monosialoceramide-lactosides (G_{M3}) were present and the sugar in the cerebrosides of cerebral gray matter was 30% galactose (100% in normal brain). The results support the theory that the biochemical defect is decreased or absent β-glucosidase activity. In Tay-Sachs disease, ester cholesterol was increased, galactolipid concentration was decreased, and the level of G_{M2} was about 75 times greater than normal, possibly due to lack of a catabolic enzyme, a hexosaminidase, or a lack of galactose transferase. Visceral ganglioside concentration was also increased, with major amounts of G_{M3} and a new ganglioside containing equimolar amounts of glucose, galactose, *N*-acetylgalactosamine, and NANA. In Krabbe's disease, great reductions in gangliotetrahexosides (G_1) and increases in G_3 and G_2 were observed, while in metachromatic leukodystrophy, levels of di- and trisialogangliosides were reduced. (31 refs.) - *M. G. Conant.*

1722 KANFER, JULIAN N., & BRADY, ROSCOE O. Studies on the biosynthesis of gangliosides. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 11, p, 187-192.

The biosynthesis of gangliosides was investigated by using tracer experiments. Preparations of young rat brain tissue were incubated with glucose-U-^{14}C and, after extraction, the aqueous material was dialyzed against water to give non-dialyzable water-soluble radioactive materials, which were also obtained by using labeled UDP-glucose and UDP-galactose. Preparations of *Escherichia coli* alkaline phosphatase and snake venom phosphodiesterase did not catalyze the biosynthesis of gangliosides from ^{14}C-glucose or the sugar nucleotides, but compounds with the properties of nucleotide sugars were produced. Similar negative results were found with ^{14}C-glucosylceramide, ^{14}C-glycosyl-sphingosine, *N*-stearoyl-^{14}C-sphingosine, ^{14}C-galactosyl-ceramide, and ^{14}C-galactosyl-sphingosine *in vitro*. An enzyme was obtained from rat kidney tissue which catalyzed the incorporation of ^{14}C-*N*-acetylneuraminic acid, indicating that Tay-Sachs ganglioside may be a normal intermediate in the biosynthesis of monosialoganglioside. This condition may be caused by the attenuation or absence of the catabolic enzyme catalyzing cleavage of the *N*-acetylgalactosaminyl or sialic acid residue from Tay-Sachs ganglioside. (16 refs.)
M. G. Conant.

1723 KAUFMAN, BERNARD, BASU, SUBHASH, & ROSEMAN, SAUL. Studies on the biosynthesis of gangliosides. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 12, p. 193-213.

The biosynthesis of gangliosides, starting with ceramide-disaccharide (CDS), was investigated by using enzymatic experiments on enbryonic chick brain homogenates. Partial heat inactivation and mixed substrate experiments indicated that the activity of sialyltransferases toward CDS differs from that toward monosialoganglioside, ceramide-tetrasaccharide, and lactose, in the CMP-*N*-acetylneuraminic acid:glycolipid system and, if a single sialyltransferase is active toward the 4 compounds, glycolipids are the preferred substrates. Highest specific activities of sialyltransferases were found in embryonic chick and fetal pig brains. The *N*-acetylgalactosaminyltransferase activity, which transfers *N*-acetylgalactosamine from UDP-*N*-acetylgalactosamine to hematoside, forming Tay-Sachs ganglioside, shows relative inactivity toward CDS as an acceptor. The particulate enzyme fraction from the embryonic chick brain contained a galactosyltransferase activity for transferring galoctose from UDP-galactose to Tay-Sachs ganglioside with formation of monosialoganglioside. The activity of this enzyme toward Tay-Sachs ganglioside differed from that toward *N*-acetylglycosamine and glycoprotein and, as in the sialyltransferase system, the highest activity was observed in embryonic chick and fetal pig brains. The final step in the biosynthesis is postulated to be the transfer of *N*-acetylneuraminic acid from CMP-*N*-acetylneuraminic acid to monosialoganglioside, in the presence of sialyltransferase, to form disialoganglioside. (23 refs.) - *M. G. Conant.*

1724 SUZUKI, KUNIHIKO. Ganglioside patterns of normal and pathological brains. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 13, p. 215-230.

Distribution of *N*-acetylneuraminic acid (NANA) by thin layer chromatography among the various gangliosides in normal human brains and rat brains of various ages and in human brains afflicted with Tay-Sachs disease, late infantile systemic lipidosis, gargoylism, metachromatic leukodystrophy, and subacute sclerosing leukoencephalitis was determined. In normal human brains, NANA content was lower in the cerebellar cortex than in the cerebral cortex and the caudate nucleus and the cerebral cortex contained the same NANA level. The cerebellar cortex is rich in G_1, the visual cortex in G_1 and G_2, and the thalamus in G_1 and G_2. These regional differences in ganglioside patterns are laterally symmetrical and consistent in the 3 brains examined (8, 44, and 73 yrs of age). The transition from the child to the adult ganglioside pattern, with the decrease in G_3, occurs in the second decade of life. Analogously, a quantitatively similar change was observed in the rat brain at 18 days. In Tay-Sachs disease, 80-90% of the total NANA in G_5 and G_6 is also elevated, while in late infantile systemic lipidosis, G_4 accumulates and, in the gray matter, contains 70-80% of total NANA. The monosialogangliosides G_5 and G_6 are very elevated in 2 cases of gargoylism, while in 2 other cases, the levels of G_5 and G_6 are lower and G_4 is much higher. However, the total amount of monosialogangliosides is constant and includes 40% of total NANA. In metachromatic leukodystrophy, the white matter contains elevated levels of minor gangliosides G_{2A}, G_{3A}, G_5, and G_6 and in subacute sclerosing leukoencephalitis, G_{2A} and G_{3A} are elevated and G_3 and G_4 are reduced in white matter. (21 refs.) - *M. G. Conant.*

1725 McCLUER, R. H., & PENICK, R. J. Isolation and structural analysis of brain gangliosides. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 15, p. 241-250.

The use of thin layer chromatography in the isolation and structural analysis of human brain gangliosides is described. Brain homogenates were extracted with acetone, diethyl ether, chloroform, and methanol and the lipids were subjected to counter-current-distribution, dialysis, and lyophilization to give mixed ganglioside preparations containing about 28% *N*-acetylneuraminic acid. The relative mobilities of the gangliosides change in different solvent systems for thin layer chromatography and no 1 system completely resolves all the components of mixed preparations. The minor gangliosides HG-A through HG-E and HG-3 are most clearly resolved by using a chloroform/methanol/2.5 *N* ammonia (60:35:8) system and a propanol/water (7:3) system clearly separates purified HG-1a from HG-1 and resolves HG-4, HG-5, HG-6, and *N*-acetylneuraminic acid. Thin layer chromatography is useful for testing the homogeneity of a preparation, but findings must be combined with supporting data to establish molecular homogeneity. Stearic acid constitutes about 90% of the total fatty acids

and C_{18} and C_{20}-sphingosine are present in HG-1, HG-2, HG-4, and HG-5, suggesting that the gangliosides are synthesized from a common ceramide precursor. (12 refs.)
M. G. Conant.

1726 WARREN, LEONARD. The metabolism of sialic acids. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 16, p. 251-259.

The biosynthetic and degradative reactions of *N*-acetylneuraminic acid (NAN) are reviewed. *N*-acetyl-*D*-mannosamine, formed from glucose in a reaction sequence involving: amination of fructose 6-phosphate to glucosamine 6-phosphate; and formation of *N*-acetylmannosamine from *N*-acetylglucosamine, reacts with phosphoenolpyruvate to form NAN. Activated NAN, formed by interaction with a nucleotide, undergoes transfer reactions to carbohydrates in oligosaccharides which are free or bound to protein or lipid. Degradative reactions include the degradation of NAN in the presence of NAN-aldolase and the cleavage of terminal sialic acid groups by neuraminidase. Control mechanisms of sialic acid metabolism in rat liver involve inhibition of enzyme formation by UDP-*N*-acetylglucosamine and CMP-NAN. In humans, the defect in sphingolipidoses may be the absence of an enzyme or defects in the balance of reactant concentrations and enzyme and inhibitor levels. (54 refs.) - *M. G. Conant.*

1727 GATT, SHIMON. Comparison of four enzymes from brain which hydrolyze sphingolipids. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 17, p. 261-266.

Ceramidase, sphingomyelinase, β-glucosidase, and β-galactosidase catalyze the hydrolysis of the sphingolipid molecule at 4 different sites to produce sphingosine, phosphorylcholine, glucose, and galactose, respectively. The 4 enzymes are located in the same subcellular fraction, require similar detergents for enzymatic activity, and are inhibited by the same compounds (sphingosine, palmitate, and ceramide). These similarities suggest the possibility that the 4 enzymes, as well as β-*N*-acetylgalactosaminidase, may be part of a multienzyme complex which catalyzes complete hydrolysis of the sphingolipids by a series of reactions. (17 refs.)
M. G. Conant.

1728 ROUSER, GEORGE, KRITCHEVSKY, GENE, GALLI, CLAUDIO, YAMAMOTO, AKIRA, & KNUDSON, ALFRED G., JR. Variations in lipid composition of human brain during development and in the sphingolipidoses: Use of two-dimensional thin-layer chromatography. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 21, p. 303-316.

Lipids were extracted from normal brain tissue of Ss of various ages and from brains of Ss afflicted with Tay-Sachs disease, Neimann-Pick disease, metachromatic leukodystrophy (MLD), and chronic and infantile Gaucher's disease. The lipids were subjected to thin layer chromatography (TLC) on silica gel and detected by using a char spray, an α-naphthol spray, a specific phospholipid spray, and/or, a ninhydrin spray and then, the amount of phosphorus in each spot was determined quantitatively. During development of the normal brain, the proportions of cholesterol, phosphatidyl serine, and phosphatidyl inositol change little, that of lecithin decreases, and those of cerebrosides, sphingomyelin, and sulfatides increase, as shown by TLC. Lipid changes of brain in both chronic and infantile Gaucher's disease are minimal or absent, but large accumulations of cerebroside are seen in lipid extracts from liver and spleen. In Tay-Sachs disease, the TLC pattern showed a type of ganglioside not seen in normal specimens and large spots of sphingomyelin and sulfatide were seen in cases of Niemann-Pick disease and MLD, respectively. Lipid compositions in Tay-Sachs and Niemann-Pick diseases and MLD are similar to those of normal infants 5-8 months old. TLC, alone or in combination with other analytical techniques, is useful in the analysis of lipids. (16 refs.)
M. G. Conant.

1729 SAMUELS, S., & ALEU, F. The formation of membrane aggregates. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 22, p. 317-324.

It was postulated that the membranous cytoplasmic bodies (MCB) observed in Tay-Sachs disease are formed by the interaction of the excessive gangliosides with cholesterol and phospholipids within the hydrophobic compartment of a water-soluble cytoplasmic lipoprotein. A beef brain lysosome (and mitochondrial) preparation incubated 1 hour with 0.2% ganglioside was identical, in terms of

soluble acid phosphatase activity, to an untreated sample, suggesting that the association of acid phosphatase with MCB *in situ* is part of a degradative process. A cerebral lipoprotein fraction isolated from beef gray matter was combined with gangliosides extracted from beef gray matter to give an addition product which had the appearance of a mesh-like membranous aggregate under the electron microscope, although no MCB were observed. The cerebral lipoprotein fraction contained more neutral lipids and less cerebrosides than the whole gray matter. (23 refs.) - *M. G. Conant.*

1730 SCHMIDT, G., HOGAN, E. L., KJETA-FYDA, A., TANAKA, T., JOSEPH J., FELDMAN, N. I., COLLINS, R. A., & KEENAN, R. W. Determination of the lipid bases in the lipids of spinal cord, optic nerve, and sciatic nerve of some species. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 23, p. 325-337.

A colorimetric method for the determination of sphingosine and dihydrosphingosine in tissue lipid mixtures and the separate determination of cerebrosides and sphingomyelin by sphingosine assays, were described. The lipid extract from tissue was subjected to methanolysis and the methanolyzate was successively separated from fatty acid methyl esters, extracted with chloroform, and analyzed by the ninhydrin reaction and by thin layer chromatography. In the sciatic nerves of the man, calf, rabbit, and rat, sphingomyelin accounted for higher percentages of the total sphingolipids than in spinal cord and optic nerve. In addition, the sciatic nerve contained a higher concentration of sphingomyelin and a higher sphingomyelin: total phospholipids ratio. The molar ratio phospholipids:cerebrosides was around 2 in the spinal cord and optic nerve and considerably higher (4-5.5) in the sciatic nerve. (22 refs.) - *M. G. Conant.*

1731 PROCOPIS, P. G., TURNER, B., RUXTON, J. T., & BROWN, D. A. Screening tests for mucopolysaccharidosis. *Journal of Mental Deficiency Research,* 12(1):13-17, 1968.

Alcian blue and cetyl-trimethyl-ammonium bromide (CTAB) urinary screening tests with a consecutive series of 580 MR children revealed 4 cases of mucopolysaccharidosis. The alcian blue test gave 5 positive results (1 of which was not studied further) and also found were metachromatic granules in the circulatory lymphocytes. The CTAB test gave 36 positive results of which only 1 was confirmed. The tests have aided in identifying another group of patients with clinical and radiological features of the Hunter-Hurler syndrome. The latter do not have positive CTAB or alcian blue tests and lack metachromatic staining lymphocyte granules. The CTAB test is considered inferior as it provides too many false positive reactions. (13 refs.) - *W. Asher.*

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1732 STEINBACH, HOWARD L., PREGER, LESLIE, WILLIAMS, HIBBARD E., & COHEN, PETER. The Hurler syndrome without abnormal mucopolysaccharidiuria. *Radiology,* 90(3):472-478, 1968.

Male and female sibs with clinical and roentgenographic signs of Hurler's syndrome but without excessive urinary mucopolysaccharides are described. The patients showed the typical facies, posture, hepatosplenomegaly, corneal clouding, and MR. Skeletal characteristics observed included shoe-shaped sellae, spatulate ribs, flared ilia, flat acetabula, and pointed metacarpals. This condition is transmitted as an autosomal recessive, as is Hurler's syndrome with abnormal mucopolysaccharidiuria. These clinical findings indicate that a complete skeletal survey is important in the early diagnosis of Hurler's syndrome, since urinary mucopolysaccharides may be normal. (10 refs.) - *M. G. Conant.*

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1733 AUSTIN, JAMES H. Some recent findings in leukodystrophies and in gargoylism. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 25, p. 359-387.

Characteristic variations observed in metachromatic leukodystrophy (MLD) and in a gargoyle-like variant (GLV) are reviewed and a case history of each is presented. MLD is associated with a deficiency of sulfatase A

and, sometimes, deficiencies of sulfatase B and C, which are hypothesized to produce glial insufficiency leading to leukodystrophy, and with paracrystalline cellular inclusions. Human sulfatase A, purified from urine, was introduced into the lumbar subarachnoid fluid of a young pig. After 18 hours, the specific activity of sulfatase A had doubled over the pre-injection level in the experimental animal and decreased in the controls. Intrathecal injection of sulfatase A into the cerebrospinal fluid of a female (CA 6 yrs) afflicted with MLD produced a brisk meningeal reaction followed by a 9-fold increase in sulfatase A specific activity, but no improvement in neurological condition. The case of GLV involved late death, absence of cloudy corneas, lack of hepatomegaly, severe, progressive, spastic paraparesis, non-sudanophilic attrition of white matter, elevated levels of sulfatase A and B, and elevated mocupolysaccharides. The male child exhibited retarded motor development by 15 months, which became progressively worse. The need for carefully controlled investigations into changes involved in GLV is stressed. (35 refs.) - *M. G. Conant.*

1734 LEROY, JULES G., & CROCKER, ALLEN C. Studies on the genetics of the Hurler-Hunter syndrome. In: Aronson, Stanley M., & Volk, Bruno W., eds. *Inborn Disorders of Sphingolipid Metabolism.* New York, New York, Pergamon Press, 1967, Chapter 32, p. 455-473.

Phenotypical, genetic, and pathological data on 57 patients with various mucopolysaccharidoses of the Hurler-Hunter type (27 with Hurler form; 21 with Hunter form; 8 with Sanfilippo form; and 1 with Scheie form) are summarized. Long-term follow-up has demonstrated the different patterns of evolution of the Hurler and Hunter forms, with appearance soon after birth and at about 2 years, respectively. Both forms show developmental and mental retardation. The Sanfilippo form presents minor skeletal involvement, normal linear growth, no kyphosis, clear corneas, and spasticity, and the Scheie form shows cloudy corneas, hepatosplenomegaly, and hyperreflexia. Genetic analysis and pedigree information are consistent with an X-linked recessive inheritance pattern in the Hunter form and autosomal recessive in the Hurler and other clinical forms. Cytologic pathology was detected in skin biopsies for all 4 clinical variants by using phase-contrast microscopy and toluidine blue staining of the cultured fibroblasts. (41 refs.)
M. G. Conant.

1735 OKADA, SHINTARO, & O'BRIEN, JOHN S. Generalized gangliosidosis: Beta-galactosidase deficiency. *Science*, 160(3831): 1002-1004, 1968.

A profound deficiency (10- to 30-fold) of β-galactosidase activity was found in tissues (liver, spleen, kidney, and brain) from 2 patients with generalized gangliosidosis; this deficiency is demonstrated as a failure to cleave both p-nitrophenyl-β-D-galactopyranoside and ganglioside GM_1 labeled with C^{14} in the terminal galactose. We believe that this enzymic defect is responsible for the accumulation of ganglioside GM_1 and is the fundamental enzyme defect in generalized gangliosidosis. (14 refs.) - *Journal abstract.*

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1736 HARPER, MARGARET A., ROBIN, HELEN, & *HARLEY, J. D. Transient infantile cyanosis in a diaphorase-deficient male. *Australian Paediatric Journal*, 4(2):144-149, 1968.

The case history of a male infant, with large bilateral cephalhematomata present at birth and transient cyanosis for the first 3 months of life, is presented. The methemoglobin concentration fell from 15% of the total hemoglobin concentration at 27 days of age to near normal levels at 3 months. The patient's capacity for reducing methemoglobin was consistently less than that of the other family members. Routine hematological investigation yielded no other abnormality. At 3 years, the patient showed normal development except for considerable retardation of speech development and left-handedness and had an erythrocytic diaphorase activity approximately 40-50% of normal. Family studies suggested that the child is heterozygous for an autosomal mutant gene. (14 refs.) - *M. G. Conant.*

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1737 LANGER, LEONARD O., JR., BAUMANN, PAUL A., & GORLIN, ROBERT J. Achondroplasia: Clinical radiologic features with comment on genetic implications. *Clinical Pediatrics*, 7(8):474-485, 1968.

Data obtained from roentgenograms of achondroplastic Ss when correlated with clinical findings should enable the physician to distinguish this entity from other forms of short limbed dwarfism such as diastrophic dwarfism and Ellis-van Creveld syndrome. Clinical features include inability to approximate the fingers when extended, disproportionate growth of the head during the first 3 years of life, and short limb length compared to trunk. Roentgenographic criteria for differentiating achondroplasia from other forms of dwarfism are presented and such a differentiation between achondroplasia which has an autosomal dominant mode of inheritance and other forms of short-limbed dwarfism is recommended. In a series of 117 achondroplastic Ss, there were no incidences of successive pregnancies of normal sized parents which resulted in dwarf births. Normal couples having 1 affected child of autosomal recessive conditions have a 25% chance of subsequent children being affected; however, the genetic possibilities are considerably different for an autosomal dominant gene. (15 refs.) - *W. Asher.*

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Minneapolis, Minnesota 55455

1738 GRUMER, H. D., KNOWLTON, D., & COSTANTINE, M. L. Metabolic fate of benzylalanine. *Biochemical Medicine*, 2(1):26-34, 1968.

Fourteen rats fed either a control diet or a diet with 2% benzylalanine added, were used to determine the effect of amino acid accumulation on growth and metabolism. Eighty percent of the C^{14}-benzylalanine was excreted by the kidney in 8 hours and between 33 and 37 mg/24 hours of alpha-ketocarboxylic acids were determined in the urine as compared to 2 mg/24 hours in the controls. The keto acids are further converted to benzoic acid. Neither phenylalanine nor benzylalanine was decarboxylated by kidney or liver homogenates. A significant amount of transamination of benzylalanine with α-ketoglutaric acid and probably with pyruvic acid occurs. In contrast with phenylalanine, benzylalanine is not hydroxylated nor does it inhibit hydroxylation of phenylalanine. These observations suggest that benzylalanine may be useful in the study of phenylketonuria. (18 refs.) *D. S. Plaut.*

Department of Pathology and
Physiological Chemistry
Ohio State University
Columbus, Ohio 43210

1739 SCHOCKET, STANLEY S. Anterior cleavage syndrome in a patient with Marfan's syndrome. *American Journal of Ophthalmology*, 66(2):272-275, 1968.

A Negro girl (CA 13; IQ low-normal) with Marfan's syndrome was found to have the anterior cleavage syndrome (mesodermal dysgenesis of cornea and iris) including Rieger's anomaly which consists of persistent pectinate ligaments, central and peripheral iris attachments to corneal endothelium, synechiae, and iris hypoplasia. The anterior cleavage syndrome occurs as a result of abnormal embryologic mesoderm differentiation. The basic defect in Marfan's syndrome is thought to be an inborn metabolic defect in connective tissue (also a mesodermal derivative). This theory is supported by experimental studies in which rats fed β-amino-propionitrile developed defects in the connective tissue, and the recently discovered inborn error of metabolism, homocystinuria, which has some features in common with Marfan's syndrome. (15 refs.) - *R. D. Nunn.*

22 South Greene Street
Baltimore, Maryland 21201

1740 GOYETTE, EDWIN M., STORER, JOHN, & GRIERSON, ARCHIBALD L. Thoracic aortic aneurysm in Marfan's syndrome: A case report. *Ohio State Medical Journal*, 64(7):804-808, 1968.

The most important manifestations of Marfan's syndrome are skeletal, cardiovascular, and ocular as demonstrated by a case history of a male Negro patient with typical spider-like appearance of the limbs and digits, a previous history of bilateral dislocated lenses, and a Grade VI diastolic murmur. Bicuspidization of the aortic valve was performed when an aneurysm of the sinus valsalva with dilatation of the root of the aorta was discovered. The patient's grandfather, uncle, and 2 of his children showed typical Marfan features. It is necessary to diagnose Marfan cases early and to follow them closely, in order to

be prepared for the many complications that are associated with this disorder. (17 refs.)
M. T. Lender.

Huron Road Hospital
Cleveland, Ohio

1741 SIRAK, HOWARD D., & RESSALLAT, MEHDI M. Surgical correction of mitral insufficiency in Marfan's syndrome: Late follow-up results in two cases. *The Journal of Thoracic and Cardiovascular Surgery*, 55(4): 493-500, 1968.

Two cases of mitral insufficiency associated with Marfan's syndrome were corrected by surgery; however, symptoms recurred within 1 year in both cases. The patients were treated by plicating and suturing torn leaflets rather than by implantation of a prothesis because sutures tend to tear away from the connective tissue in these patients. It is assumed that the inherent connective tissue defect in Marfan's syndrome is the basis for the recurrent difficulties and that corrective surgery has only temporary effects. (24 refs.)
M. T. Lender.

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The Ohio State University Hospitals
Columbus, Ohio 43210

1742 SCARPELLI, DANTE G., & *GOODMAN, RICHARD M. Observations on the fine structure of the fibroblast from a case of Ehlers-Danlos syndrome with the Marfan syndrome. *The Journal of Investigative Dermatology*, 50(3):214-219, 1968.

The ultrastructure of granulation tissue from a 10-day healing dermal wound in a patient with Ehlers-Danlos syndrome and Marfan's syndrome (which does not involve impaired healing) was examined using light and electron microscopy and compared with that from 3 controls of comparable age, race, and sex. Tissues for light microscope study were fixed in formalin and embedded in paraffin and tissues for electron microscope study were fixed in osmium tetroxide and embedded in maraglas. Fibroblasts in which the cytoplasm consists of a highly organized rough-surfaced endoplasmic reticulum and fibroblasts in which the cytoplasm contained few endoplasmic reticulum were observed in tissue from the patient. Small, sparse collagen bundles and an unidentified, low electron density fibrillar material were present in the extracellular compartment. The control tissue showed large fibroblasts of the classical type. These results suggest that the defect in the Ehlers-Danlos syndrome may be in the fibroblast and in the synthesis of collagen. (27 refs.)
M. G. Conant.

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College of Medicine
Columbus, Ohio 43210

1743 LEE, JAMES B., TASHJIAN, ARMEN H., JR., STREETO, JAMES M., & FRANTZ, ANDREW G. Familial pseudohypoparathyroidism: Role of parathyroid hormone and thyrocalcitonin. *New England Journal of Medicine*, 279(22):1179-1184, 1968.

In the second reported occurrence of a kindred with familial pseudohypoparathyroidism occurring in 2 successive generations, parathyroid hormone, measured by radioimmunoassay in peripheral venous plasma, was elevated in all of 3 patients. In 1 parathyroid hormone was measured in high concentration in thyroid venous plasma, with normal levels of parathyroid hormone in the parathyroid glands and very high concentrations of thyrocalcitonin in excised thyroid tissue. In 1 patient surgical and radioactive ablation of the thyroid gland failed to ameliorate the hypocalcemia, suggesting that excessive thyrocalcitonin secretion is not a primary factor in the etiology of this syndrome. These findings support Albright's original hypothesis that end-organ refractoriness to parathyroid hormone is the fundamental defect in pseudohypoparathyroidism. (19 refs.)
Journal abstract.

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1744 STANBURY, JOHN B., ROCMANS, PIERRE, BUHLER, ULRICH K., & OCHI, YUKIO. Congenital hypothroidism with impaired thyroid response to thyrotropin. *New England Journal of Medicine*, 279(21):1132-1136, 1968.

An 8-year-old boy had congenital hypothyroidism and severely retarded development. The thyroid gland was not enlarged, but there was cell hypertrophy of the follicular epithelial elements. Laboratory findings included low serum concentration of protein-bound iodine,

high biologically active thyrotropin, normal ^{131}I uptake, no response to thyrotropin either *in vivo* or in metabolism of glucose by thyroid tissue slices, absence of thyroglobulin from the biopsy and presence in the gland of a dense, insoluble iodoprotein and a light, soluble iodoprotein that was not iodoalbumin. Most of the circulating protein-bound iodine was not soluble in butanol. The hypothesis offered is that the fundamental defect in this gland is an impaired ability to respond to stimulation by thyrotropic hormone in 2 organ-specific and possibly coupled modes: cell division (growth) and synthesis of thyroglobulin. (15 refs.) - *Journal abstract.*

Department of Nutrition and
Food Science
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

1745 BOWERS, C. Y., SCHALLY, A. V., HAWLEY, W. D., GUAL, CARLOS, & PARLOW, ALBERT. Effect of thyrotropin-releasing factor in man. *Journal of Clinical Endocrinology and Metabolism,* 28(7):978-982, 1968.

This study reports the changes of plasma TSH levels which occurred when a highly purified preparation of porcine TRF was given to 3 cretins. These results in man indicate a certain lack of species specificity since TRF prepared from the hypothalami of pigs was active in the mouse and rat as well as man. The levels of TSH were measured by both bioassay and radioimmunoassay and were found to rise within 3 minutes in 2 of the patients and by 6 minutes in all 3 patients. The greatest rise was from 6 to 30 minutes and was followed by a gradual decline of the TSH level over the next 45 minutes. When the plasma level of TSH was measured in 1 of the patients 120 minutes after injecting TRF, it had returned to the base line level. Some conditions considered important for testing the activity of TRF in man are given. Because of the limited supply of TRF available, it was not possible to determine if the above were the optimal conditions for detecting the TRF response in man. (23 refs.) - *Journal abstract.*

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New Orleans, Louisiana 70112

1746 MEDEIROS-NETO, GERALDO A., NICOLAU, WILLIAM, KEIFFER, JULIO, & ULHOA CINTRA, A. B. Thyroidal iodoproteins in Pendred's syndrome. *Journal of Clinical Endocrinology and Metabolism,* 28(8):1205-1213, 1968.

The distribution of ^{127}I, ^{125}I, or ^{131}I, and protein was studied in thyroid tissue from 3 patients with Pendred's syndrome. In each of these patients a significant amount of trapped iodide was dischargeable after administration of perchlorate. Two specimens (nodular and paranodular tissue) were studied from each patient. Iodinated insoluble protein comprised 6.4-33.1% of the total radioactive iodine in the homogenates. More particulate labeled iodine was present in the nodular tissue/g of tissue, as compared to paranodular tissue. Nearly 1/3-1/2 of the total ^{127}I was incorporated into the particulate protein. The pattern of protein distribution followed closely that of stable iodine. In the nodular tissue it was found that the insoluble protein had more labeled iodine/μg of ^{127}I than in the soluble fraction. After 3 weeks of a tracer dose the particulate protein had more labeled iodine/g than after 24 hours of labeling. The particulate iodoprotein was solubilized with trypsin and could be separated from normal thyroglobulin by gel filtration. It also behaved differently from thyroglobulin in agar plates when tested against antisera. In both specimens of thyroid tissue (nodular and paranodular) less than 15% of total soluble protein was in the 19S peak; in 1 specimen of nodular tissue no detectable 19S protein could be found in the supernatant. It is suggested that patients with Pendred's syndrome may have iodide organification and an inherited disorder affecting normal thyroglobulin synthesis. (15 refs.) - *Journal abstract.*

First Medical Clinics
University of Sao Paulo
Medical School
Sao Paulo, Brazil

1747 BONGIOVANNI, ALFRED M., & EBERLEIN, WALTER R. Endocrine disorders. In: Shirkey, Harry C., ed. *Pediatric Therapy.* Third edition. St. Louis, Missouri, C. V. Mosby, 1968, Chapter 99, p. 780-790.

Several endocrine disorders are discussed with respect to specific drug therapy, supportive therapy, contraindications, and side reactions. Hypopituitarism is treated by administration of desiccated thyroid to the prepubertal child and desiccated thyroid is also used in the treatment of congenital and acquired hypothyroidism and goiter, while

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hypopituitarism in the adolescent is treated with synthetic androgens. The specific therapy for diabetes insipidus is vasopressin tannate and that for delayed adolescence and hypogonadism is synthetic androgens. Oral administration of propylthiouracil is advised for treatment of thyrotoxicosis, surgery for thyroid carcinoma, and calcium gluconate for hypocalcemia. The most frequently used drug in the treatment of hypoparathyroidism and pseudohypoparathyroidism is vitamin D_2. There is no known treatment for idiopathic hypercalcemia as yet. Acute adrenocortical insufficiency is treated with glucocorticoids, while hydrocortisone or cortisone acetate is the drug of choice in the treatment of stress complicating adrenocortical insufficiency, congenital adrenal hyperplasia, and Addison's disease. In Cushing's syndrome, total adrenalectomy is advised. (2 refs.) *M. G. Conant.*

1748 STOOP, J. W., SCHRAAGEN, M. J. C., & TIDDENS, H. A. W. M. Pseudo vitamin D deficiency rickets: Report of four new cases. *Acta Paediatrica Scandinavica,* 56(6):607-616, 1967.

Four cases of pseudo vitamin D deficiency rickets demonstrated rachitic changes as early as the last part of the first year, a pronounced hypotonia, a near-normal to normal serum phosphorus concentration, hypocalcemia (blood calcium concentration below 8 mg/100 ml), and repeated tetany. Two Ss had spontaneous fractures and convulsions. All Ss had normal renal and liver functions, and an absence of both steatorrhoea and cystine crystals in the cornea. Vitamin D_3 treatment in exceedingly large amounts (2-40 million U) was successful in diminishing the aminoaciduria and mild acidosis. A rapid growth catch-up was recorded with an important motor development acceleration; 1 S remained slightly MR. The average maintenance level of vitamin D in treatment was 21-45 thousand U/day. In both vitamin D refractory rickets and pseudo vitamin D deficiency rickets, alkaline phosphate level increased, but in the latter disorder the blood chemistry can be normalized. Both diseases appear hereditary and it is suspected that pseudo vitamin D rickets is an autosomal recessive. Future research is suggested to discover the underlying defect in this disorder. (12 refs.) - *L. Negulesco.*

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Nieuwe Gracht 137
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1749 RITCHIE, JOSHUA H., FISH, MATHEWS B., McMASTERS, VIRGINIA, & *GROSSMAN, MOSES. Edema and hemolytic anemia in premature infants: A vitamin E deficiency syndrome. *New England Journal of Medicine,* 279(22):1185-1190, 1968.

Widespread edema, anemia, reticulocytosis, thrombocytosis and vitamin E deficiency were noted in 7 premature infants during the second month of life. Appropriate studies excluded the usual causes of these findings. The erythrocyte survival times, measured by means of $DF^{32}P$ and ^{51}Cr, were strikingly short, confirming the hemolytic nature of the anemia. All infants had been fed commercial formulas with iron and a high content of polyunsaturated fatty acid, resulting in a low ratio of vitamin E to fatty acids. When vitamin E (alpha-tocopherol acetate), 75 to 100 IU daily, was given separately by mouth to 5 infants available for treatment and study, serum tocopherol level rose, reticulocyte count fell to normal and erythrocyte survival time lengthened; this was followed by correction of anemia, clearing of the edema and subsidence of the thrombocytosis. Formulas having low ratios of vitamin E to polyunsaturated fatty acids and added iron supply an inadequate amount of vitamin E to low-birth-weight infants, in whom vitamin E deficiency may be a common and important cause of anemia and edema. (43 refs.) - *Journal abstract.*

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1750 GIROUD, A. Nutrition of the embryo. *Federation Proceedings,* 27(1):163-184, 1968.

Since 1935 much research has been done in the areas of embryonic nutrition, which includes nutrient deficiencies, excesses, and equilibrium, and the correlation between nutrition and genetics. The mammalian embryo, including humans, utilizes nutrients transferred from the mother through a placenta or embryotrophe. Maintenance, differentiation, and growth periods have characteristic and different nutritional requirements. Dietary excesses can adversely affect the embryo, and deficiencies can result in prematurity, lesions, stunting, and/or death. Protein and amino acids are the most important nutritional factors as the production of nucleic acids and proteins is

dependent on adequate, but not excessive, supplies. Lipids, carbohydrates, vitamins, and minerals also must be present in adequate amounts. Phenylketonuria is an example of a genetic disorder in which nutritional factors must be considered and many more such syndromes are being elucidated. The importance of a normal condition of the placenta for nutrient transfer is pointed out. (350 refs.) *M. T. Lender.*

Laboratoire d'Histologie
Faculte de Medecine
Paris, France

1751 O'DELL, BOYD L. Trace elements in embryonic development. *Federation Proceedings,* 27(1):199-204, 1968.

Copper, zinc, and cobalt (cyanocobalamin or vitamin B_{12}) are 3 of the trace elements that are essential for embryonic development. Cobalt and/or folic acid deficiency have been known to be associated with internal hydrocephalus in neonate rats and spina bifida, edema, anophthalmia, harelip, cleft palate, and agnathia are also associated with this deficiency. In addition, acute uremia, dyspnea, cyanosis, and emaciation are usually present. Vitamin B_{12} deficiency also produces deformities in pigs and birds. Copper deficiency produces neonatal ataxia in lambs, which is associated with nerve, glial cell, and myelin dysfunction. There are antagonistic relationships between copper and zinc, and copper and molybdenum. Stillbirths, subcutaneous hemorrhage, and hydrocephalus result experimentally from copper-molybdenum and copper-zinc imbalances. Birds suffer low hatchability, hemorrhage, and other dysfunctions from copper deficiency. Zinc and iron deficiencies increase the incidence of malformations and decrease the viability of neonates. There is a narrow and critical range of requirements for the trace element and deviations below the optimum levels are generally more serious than those above the optimum levels. (33 refs.) - *M. T. Lender.*

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Chemistry
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1752 HURLEY, LUCILLE S. Approaches to the study of nutrition in mammalian development. *Federation Proceedings,* 27(1):193-198, 1968.

The nutrition of mammalian development may be studied by the use of many different approaches such as maternal diet control, maternal analyses and examinations, and embryological and neonate examination. Studies on transitory deficiency of pantothenic acid and severe deficiencies of zinc and manganese were performed on laboratory animals. Transitory pantothenic acid deficiency was found to reduce the number of live births, increase the number of litters aborted, and increase liver fat levels in newborn guinea pigs. Pregnant rats receiving a zinc deficient diet lost weight during pregnancy, and only 50% gave birth to living young. Many malformations were found in the offspring including hydrocephaly and hydranencephaly. The zinc content was found to be low in the ash of the deficient neonates, indicating that the teratogenic effect is in the body of the fetus, and not from deficiency effects in the mother. Manganese deficiency causes irreversible ataxia, inner ear defects, and bone deficiencies in the offspring. The synthesis of mucopolysaccharides is abnormal in manganese deficiency as shown by autoradiography. The ataxia associated with manganese deficiency in mice is indistinguishable from a genetic ataxia and both types of ataxia can be prevented with manganese supplementation. The genetic, physiological, biochemical, morphological events, and interactions of development can be used to study and understand developmental nutrition. (29 refs.) *M. T. Lender.*

Department of Nutrition
University of California
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1753 CULLEY, WILLIAM J., & LINEBERGER, ROBERT O. Effect of undernutrition on the size and composition of the rat brain. *Journal of Nutrition,* 96(3):375-381, 1968.

Brain composition and size of rats on restricted high protein feed intake from 5 until 11, 17, and 60 days of age were determined and compared with those for age-matched rats allowed to feed *ad libitum* from birth and after various periods of restricted feeding. All values for rats on restricted feedings during the preweaning period were lower than those for controls. Brain deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) were not increased by *ad libitum* feeding to 110 days of age in rats undernourished until at least 17 days of age, indicating that it is during the first 17 postnatal days that feed restriction can cause a low brain DNA level. Brain weight and total brain protein, lipid, phospholipid, cholesterol, and cerebroside, as well as percentage of the last 4 brain components, in rats undernourished for 11, 17, or 60 days, then fed *ad libitum* until 110

days of age were still significantly lower than normal, although the deficit was partially recovered. The data indicate that the rat brain establishes the ability to recover from food restriction between 11 and 17 days of age and that this ability may be dependent on the number and type of brain cells present at 17 days of age. The cerebellum was the most severely affected, in terms of weight and DNA content, by restricted feeding. (23 refs.) - *M. G. Conant.*

Muscatatuck State Hospital
Butlerville, Indiana 47223

1754 BALMER, SUSAN, HOWELLS, GLAN, & WHARTON, BRIAN. The acute encephalopathy of kwashiorkor. *Developmental Medicine and Child Neurology,* 10(6):766-771, 1968.

Biochemical estimations of sodium, potassium, chloride, plasma proteins, bilirubin, alkaline phosphatase, isocitrate dehydrogenase, creatine kinase, urea, glucose, urinary hydroxyproline index, and cerebrospinal fluid glutamine were made on 159 children under treatment for kwashiorkor. Eighteen patients became drowsy and exhibited various neurological signs (coma, asterixis, increased limb tone, hypothermia, bradycardia, cardiac failure, skin hemorrhages) and 7 eventually died. The only significant biochemical differences between the drowsy and non-drowsy children were a hydroxyproline index greater than 2 and a serum sodium value below 130 mEq/l during treatment, both in the drowsy children. The encephalopathy is not due to severe brain disruption, infection, drug toxicity, hypoglycemia, uremia, or cholemia, but may be related to movements of water and electrolytes across the blood-brain barrier. The effect of rapidly acting diuretics on the EEG of kwashiorkor patients under treatment might be of value. (18 refs.) - *M. G. Conant.*

M.R.C. Infantile
Malnutrition Unit
Kampala, Uganda

New Growths

1755 LUSE, SARAH A., & TEITELBAUM, STEVEN. Congenital glioma of brain stem. *Archives of Neurology,* 18(2):196-201, 1968.

A rare mixed glioma primary in the medulla produced clinical symptoms at birth in a full-term male infant who was cyanotic and without spontaneous respiration at birth. Tracheostomy was performed and vocal cord paralysis was noted. The infant was maintained on a Bennett respirator throughout his 6 days of life. At autopsy a malignant glioma of mixed type was found to have infiltrated the medulla, right restiform body, and meninges of the medulla, pons, and cerebellum. The tumor involved both the medullary nuclei of the vagus nerve and part of the medullary respiratory center, thus causing vocal cord paralysis and failure of respiratory function. Less than 10 tumors of this type have been reported previously. (8 refs.) - *E. L. Rowan.*

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1756 BRAUN, J. -P. Les hematomes pericerebraux (Pericerebral hematomas). *France Medicale,* 31(2):101-106, 1968.

Cerebral angiography, an indispensable tool in the diagnosis of pericerebral hematomas, permits differentiation of the various hematic collections. Angiographic examination of extra-dural hematomas reveals characteristic displacements of the anterior and middle cerebral arteries as a function of the size and localization (frontal, fronto-planar, fronto-temporal, temporal, basal, parietal, or occipital) of the hematoma. Acute, subacute, and chronic subdural hematomas can also be diagnosed differentially by use of angiography. The angiographic image of acute subdural hydroma shows a narrow avascular space between the cranial brain cap and the cerebral cortex. If the image cannot be attributed to a single hematoma, the possibility of associated hematomas must be considered. Angiography is also useful in the diagnosis of rare expansive meningeal diseases. (No refs.) - *M. G. Conant.*

1757 BAUMGARTNER, J. Les tumeurs de la fosse posterieure de l'enfant (Tumors of the posterior fossa in children). *France Medicale*, 31(2):107-115, 1968.

Tumors of the posterior fossa, which are among the most frequent of the intracranial tumors (60-75% of all cases) in children, can be separated into 4 types: medulloblastoma; astrocytoma; ependymoma; and glioblastoma (in order of decreasing occurrence). Intracranial hypertension produces vomiting and behavior problems, tumors of the cerebral trunk cause diplopia, facial paralysis, and hemiplegia, and tumors of the cerebellum produce hydrocephaly and psychomotor deterioration. Useful complementary tests for suspected tumors are an ocular examination, skull radiography, and gas insufflations such as ventriculography and fractional gas encephalography. The tumors are generally malignant, easily diagnosed, and are rarely cured, except in the case of cystic astrocytoma of the cerebellum. Surgery and radio- or cobaltotherapy may allow survival for 1-8 years. (No refs.) - *M. G. Conant.*

No address

1758 CORRELL, JAMES W. Pediatric neurosurgery. In: Shirkey, Harry C., ed. *Pediatric Therapy*. Third edition. St. Louis, Missouri, C. V. Mosby, Chapter 112, p. 1117-1130.

The majority of tumors occurring in the posterior fossa in children are equally divided between astrocytomas and medulloblastomas, with ependymomas third in frequency of occurrence and gliomas of the brainstem also are found. Craniopharyngiomas make up about 10% of the intracranial tumors of children, and pinealomas, tumors of the cerebral hemispheres, and optic gliomas also occur. In all cases, the optimum treatment is total excision of the tumor or, if that is impossible, X-ray treatment to alleviate the symptoms. Spinal cord tumors are less frequent than intracranial tumors and treatment is surgical removal when possible with X-ray therapy following surgery. Hydrocephalus may be a congenital malformation, or caused by neoplastic, postinfectious, or posttraumatic events, and surgical operations for relief are choroid plexectomy, lamina terminalis puncture and third ventriculostomy, and shunting or bypassing procedures. These methods control intracranial pressure and preserve brain function. Spina bifida occulta surgery usually only prevents progression, while meningoceles and meningomyeloceles usually can be repaired. (5 refs.) - *M. G. Conant.*

1759 NEVIN, N. C., & PEARCE, W. G. Diagnostic and genetical aspects of tuberous sclerosis. *Journal of Medical Genetics*, 5(4):273-280, 1968.

Among persons living within the area of the Oxford (England) Regional Hospital Board, 18 were identified as having tuberous sclerosis, and an additional 14 cases were reported at autopsy. The classical clinical triad of convulsions, MR, and adenoma sebaceum was not observed in all living patients as convulsions in 83%, MR in 61%, retinal tumors in 76%, and cutaneous manifestations (adenoma sebaceum in 83%, shagreen plaques in 83%, and depigmented areas in 61%) were the most common findings. Only 4 families showed evidence of autosomal dominant inheritance and the other cases were considered to be "sporadic." The minimal incidence in the area was calculated to be 1/100,000 persons with an estimated mutation rate of 10.5/million genes/generation. The high incidence of retinal tumors (phakomas) provides an important diagnostic clue and makes fundoscopic examination mandatory in infants with convulsions and skin changes. An appropriate diagnosis of tuberous sclerosis must be formulated for determination of the prognosis and need for genetic counseling. (25 refs.) - *E. L. Rowan.*

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1760 ZAREMBA, J. Tuberous sclerosis: A clinical and genetical investigation. *Journal of Mental Deficiency Research*, 12(1): 63-80, 1968.

Tuberous sclerosis is described as congenital developmental malformations which affect all 3 embryonic layers but essentially affects organs which derive from ectoderm. MR, Pringle's tumors, and epilepsy are basic symptoms. SMR children from 23 Polish institutions were surveyed to determine incidence and prevalence and results demonstrated 40 cases in 26 families with 29 females and 11 males. Genetic analysis showed a total of 26 propositi and 14 secondary cases including 15 families without and 11 with evidence of genetic transmission. Pringle's tumors were the most frequent skin lesion while the second most frequent sign was the depigmental naevi which were found in 31 Ss and can be considered of diagnostic value since they are present at birth. Phakomata of the eye fundi was

found in 19 Ss. Sixty percent of the cases were considered to be SMR; however, a total of 16 of the 40 affected patients were mentally normal. Tuberous sclerosis seems to affect mental development either mildly or severely with few intermediate cases. Epilepsy was found in 33 of 40 Ss and usually appears during the first year. There was spontaneous regression of epilepsy occurring in 7 Ss. Radiological changes in the brain, skull, hands, and feet are considered valuable diagnostic signs. The incidence of this disorder in the population was ascertained as about 44 x 10^{-6}. In cases "of familial appearance of tuberous sclerosis, dominant inheritance was seen with full penetrance of the TS gene in spite of varying manifestation." Sporadic cases occurred in at least 1/2 of the analyzed families. Parental age was not a significant factor. (38 refs.) *B. Bradley.*

Psychoneurological Institute
Warsaw, Poland

1761 BOUCHARD, R., & CASTAING, N. La maladie de Recklinghausen de l'enfant (Infantile Recklinghausen disease). *Medicine Infantile,* 74(10):799-807, 1967.

Neurofibromatosis (Recklinghausen's disease) in children is discussed with respect to symptoms, development, clinical forms, diagnosis, anatomical pathology, genetics, and treatment. The central nervous system is often affected in children, with frequent formation of slow-developing spongioblastomas. The optic and acoustic nerves are the cranial nerves usually affected. MR generally accompanies this disease for which bone and skin anomalies are common. The affliction shows a frequent, but inconsistent familial character and is transmitted in a dominant autosome mode. (3 refs.) - *M. G. Conant.*

1762 CHINO, FUMITOSHI, & TSURUHARA, TAKASHI. Electron microscopic study on von Recklinghausen's disease. *Japanese Journal of Medical Science and Biology,* 21(4):249-257, 1968.

Skin nodule specimens from 3 patients with von Recklinghausen's disease were examined electron microscopically in order to reveal structures associated with the disease. The tumors, which were in the superficial subcutaneous tissues, contained Schwann cells, fibroblasts, and collagenous fibers. The Schwann cells always had a basement membrane, while the fibroblasts did not, and the axons were unmyelinated. The 3 types of Schwann cell proliferations were an almost normal peripheral nerve with an axon, a Schwann cell wrapped in its cytoplasmic process without an axon, and Schwann cell without axon or "wrapping cytoplasmic process." Desmosomes were sparsely present and the fibroblasts were in close association with the Schwann cells. The Schwann cells were found to produce some of the collagenous fibers and a "peculiar banded structure" was found with collagenous fibers. No etiological condition for Schwann cell proliferation could be discovered. (11 refs.) *M. T. Lender.*

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Unknown Prenatal Influence

1763 COLLMANN, R. D., & STOLLER, A. The occurrence of anencephalus in the state of Victoria, Australia. *Journal of Mental Deficiency Research,* 12(1):22-35, 1968.

The incidence of anencephalic births in Victoria, Australia, for the 12-year period from 1954-1965 was observed to be 1/3 that of the United Kingdom and the state of Rhode Island during the same period (0.072/100 total births). Urban and rural areas of Victoria were essentially identical. No significant secular rise and fall or seasonal changes were observed. Migrant influx effect during the 1949 period was not significant. Environmental factors with a low community disease reservoir are postulated to explain Victoria's lower incidence of anencephalus compared to western Europe and the United Kingdom. (24 refs.) - *W. Asher.*

Mental Health Authority and
Mental Health Research Institute
Victoria, Australia

1764 BHARATHRAJ, J. An observational report of four microcephalics in the same family. *Indian Journal of Mental Retardation*, 1(2):95-97, 1968.

Four microcephalics born in a single family with 7 sibs are described with data included on head circumference (16-17 in); motor development (poor); speech (unintelligible except in 1 child); and IQ (20-30). Familial history, pregnancy, and medical studies were all uninformative in the determination of the etiology of this rather rare medical case. (No refs.) - *M. Drossman.*

All India Institute of Speech and Hearing
Mysore 5, India

1765 ROBINSON, GEOFFREY C., WATT, JAMES A., & SCOTT, EILEEN. A study of congenital blindness in British Columbia: Methodology and medical findings. *Canadian Medical Association Journal*, 99(17):831-836, 1968.

A study of 233 congenitally blind children born in British Columbia from 1944 to 1964 is presented. Genetic, prenatal, and perinatal causes were found to account for over 60% of the cases. Congenital cataract has replaced retinopathy of prematurity as the most common ocular lesion. The third cause of congenital blindness was found to be optic atrophy. Retinopathy of prematurity is associated with the most severe visual loss. Forty-four percent of the children had no useful vision. Over 50% of the children had a second handicap such as deafness, developmental retardation, cerebral palsy, epilepsy, or congenital heart disease. Sixteen percent had 2 such handicaps. The rubella syndrome is responsible for the majority of multi-handicapped children. Retinopathy of prematurity and optic-nerve atrophy are also associated with multiple handicaps. A systematic examination, including an ophthalmological examination to determine the visual status, the type, and site of the lesion and its etiology, and an examination for additional handicaps, is necessary to plan suitable educational facilities for blind children. (9 refs.) *Journal summary.*

Health Centre for Children
715 West 12th Avenue
Vancouver 9, British Columbia
Canada

1766 SUGAR, H. SAUL. The cryptophthalmos-syndactyly syndrome. *American Journal of Ophthalmology*, 66(5):897-899, 1968.

The combination of cryptophthalmos with syndactyly occurs with enough frequency to be called the cryptophthalmos-syndactyly syndrome. Cryptophthalmia may occur in the complete, incomplete (partial ablepharon), and abortive forms (congenital symblepharon of the upper lid) with other associated anomalies of the eye, ear, nose, throat, and face. It may include hare lip, cleft palate, MR, meningo-encephalocele, umbilical hernia, renal aplasia and vesical and anal atresia. The syndrome is thought to be an autosomal recessive trait. Typical clinical symptoms are described in a white woman (CA 35 yrs) and included syndactyly of both hands, keratinization of the left cornea secondary to exposure, alar separation with midline cleft above the tip of the nose, and deformed fingernails and distal phalanges of the left hand. In this case, there were no malformations of the ears and genitalia and hearing was normal. (33 refs.) - *R. D. Nunn.*

Department of Ophthalmology
Wayne State University
Detroit, Michigan 48207

1767 GUPTA, J. S., GUPTA, S. D., & PRASHAR, S. K. Oculo-auricular cranial dysplasia. *British Journal of Ophthalmology*, 52(4):346-347, 1968.

A case of hydrocephalus occurring with oculo-auricular dysplasia (Goldenhar's syndrome) is reported. A male infant (CA 4 mos), was shown to have bilateral ocular epibulbar dermoids, pre-auricular appendages, congenital (internal) hydrocephalus, meningo-encephalocele, high arched palate, and unilateral non-fusion of the medial and lateral nasal folds. Spine, chest, and pelvic X-rays were normal and there was no palpebral coloboma. (2 refs.) *R. D. Nunn.*

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Chandigarh 23, India

1768 STEIN, R., *LAZAR, M., & ADAM, A. Brittle cornea: A familial trait associated with blue sclera. *American Journal of Ophthalmology*, 66(1):67-69, 1968.

The triad of brittle corneas, blue sclerae, and red hair in 2 Tunisian Jewish boys is suggested as a new syndrome. Clinical symptoms

included perforated right eye, iris prolapse, thin cornea, and eventual blindness which occurred in 1 child, while the second child (an older brother) had hydrocephaly, MR, and bilateral syndactyly of the second and third toes. This sib is also blind in the left eye, while the right eye was enucleated following repeated corneal ruptures. The parents are first cousins and blue sclerae are found in the mother, 3 of 4 sisters, a maternal aunt (whose husband was also a first cousin) and 2 of her 3 daughters. The absence of a family history of deafness or bone fractures appears to rule out osteogenesis imperfecta. In another report, 2 unrelated Jewish-Tunisian females were found to be similarly affected which supports the belief that this triad of symptoms is due to a single gene and that homozygosity at an autosomal locus is responsible with blue sclerae occasionally appearing in heterozygotes. (9 refs.)
R. D. Nunn.

*Mount Sinai Hospital
Fifth Avenue and 100th Street
New York, New York 10029

1769 MORRISON, STANLEY G., PERRY, LOWELL W., & SCOTT, LEWIS P., III. Congenital brevicollis (Klippel-Feil syndrome). *American Journal of Diseases of Children,* 115(5):614-620, 1968.

The Klippel-Feil syndrome is a clinical triad consisting of short neck, low occipital hairline, and decreased mobility of the head. The clinical and anatomical expressions of this syndrome vary widely. Although the etiology is unknown, it is generally held that it is produced by a disturbance of secondary mesodermal migration at the time when the cervical centra and discs are formed. Defects in other organ systems developing at the same stage of embryogenesis have been widely reported in association with this syndrome. Two cases of congenital brevicollis with associated cardiovascular anomalies are presented. A summary of previously reported cases of Kippel-Feil syndrome with congenital heart disease is given. Heart defects have been noted in about 4% of patients with congenital brevicollis reported in the literature. Although the neck deformity affects both sexes equally, it appears that cardiovascular anomalies are more common in females with the syndrome. Ventricular septal defect is the commonest type of heart disease reported, but other cardiovascular anomalies are also noted. No single cardiac lesion appears to be characteristic. (64 refs.) - *Journal summary.*

2125 13th Street, N. W.
Washington, D. C. 20009

1770 GELLIS, SYDNEY S., & FEINGOLD, MURRAY. Caudal dsyplasia syndrome (Caudal regression syndrome): Denouement and discussion. *American Journal of Diseases of Children,* 116(4):407-408, 1968.

Two photographs and 1 X-ray illustrate spinal defects in an infant affected with caudal dysplasia. Severe cases result in neurological loss below the vertebral lesion and require urologic and orthopedic habilitation techniques similar to those used with paraplegics. It is noteworthy that 16% of infants studied had diabetic mothers and there is some indication of a familial tendency. (3 refs.)
J. P. West.

Boston Floating Hospital
20 Ash Street
Boston, Massachusetts 02111

1771 KLOSS, JOSEPH L. Craniosynostosis secondary to ventriculoatrial shunt. *American Journal of Diseases of Children,* 116(3):315-317, 1968.

A case of craniosynostosis occurred as a complication of a ventriculoatrial shunt for hydrocephalus. The use of a medium pressure valve in younger infants might be preferable, since 4 of the 7 cases reported in the literature occurred in patients in whom a low pressure valve had been used. (6 refs.)
Journal summary.

1625 West Portage Trail
Cuyahoga Falls, Ohio 44223

1772 *Studies in Hydrocephalus and Spina Bifida (2). Developmental Medicine and Child Neurology,* Supplement No. 16. London, England, William Heinemann Medical Books, 1968, 112 p.

Papers presented at the 1968 meeting of the Society for Reserach into Hydrocephalus and Spina Bifida in Lund, Sweden, are presented. The studies were concerned with the effects of early treatment of extreme hydrocephalus; the utility of echoventriculographic findings; the reliability of hydrodynamic evaluation, intracranial telemetry, and the false fontanelle as monitors of intracranial pressure and/or shunt functioning; in hydrocephalic children; an evaluation of the effects of prophylactic lengthening of the distal catheter of the Holter ventriculoatrial shunt; the early embryogenesis of the CNS; hemimyelocele; and the analysis and treatment of bladder

disturbances. Studies of infants born with congenital hydrocephalus indicate that if operative treatment is not delayed, normal physical development, a normal-sized head and superior intelligence are possible even in the most extreme degrees of hydrocephalus. When severe hydrocephalus occurs with myelomeningocele, treatment results are less encouraging than for hydrocephalus alone. There appears to be a clear relationship between specific types of bladder disturbance and neurological lesions in the lower limbs in children with myelomeningoceles. Gentamicin, an aminoglycoside antibiotic drug, has been used to treat persistent urinary tract infections in children with neurogenic bladders. Hemimyelocele is a specific spinal cord abnormality with a characteristic syndrome which permits its identification prior to spinal exploration. Symptoms include marked asymmetry of innervation of the lower limbs, normal functioning of the urinary tract only when 1 limb is fully innervated, progressive clinical scoliosis, and abnormality of the spinal cord and meninges. (179 refs.) *J. K. Wyatt.*

CONTENTS: On Water Shifts in the Hydrocephalic Brain (Granholm); On Pre- and Post-operative Echoventriculographic Findings in Hydrocephalic Infants and Children (West); Analysis of Intracranial Pressure in Hydrocephalus (Shulman & Marmarou); The False Fontanelle as a Practical Method of Long-term Testing of Intracranial Pressure (Forrest & Tsingoglou); The Results of Early Treatment of Extreme Hydrocephalus (Lorber); Hydrodynamic Evaluation of Shunt Performance in Hydrocephalus (Andersson & Lofgren); Therapeutic and Prophylactic Lengthening of Distal Catheter of the Holter Ventriculo-atrial Shunt (Tsingoglou & Forrest); Early Embryogenesis of the Central Nervous System with Special Reference to Closure Defects (Kallen); Studies on the Embryogenesis of Spina Bifida in the Rat (Lendon); The Position of the Spinal Cord Segments Related to the Vertebral Bodies in Children with Meningomyelocele and Hydrocephalus (Naik & Emery); Hemimyelocele (Duckworth, Sharrard, Lister, & Seymour); Pathophysiology of the Bladder in Myelomeningocele and its Correlation with the Neurological Picture (Stark); Pressure Variations in Intestinal Loops used for Urinary Diversion (Pekarovic, Robinson, Lister, & Zachary); Treatment of Persistent Urinary Tract Infections with Gentamicin (Lorber & Formby); A Harmless Method for the Assessment of the Patency of Ventriculoatrial Shunts in Hydrocephalus (Go, Lakke, & Beks); Vertebral and Other Abnormalities in Parents and Sibs of Cases of Spina Bifida Cystica and of Anencephaly (Laurence, Bligh, & Evans); A Technique for Urinary Diversion (Nixon & Kapila); An Investigation into the Verbal Facility of Hydrocephalic Children with Special Reference to Vocabulary, Morphology and Fluency (Parsons); Shunt Surgery in Hydrocephalus after Blockage of Both Internal Jugular Veins (Dickson, Eckstein, Glasson, & Kapila); Preliminary Report on a Combined Early Physical and Surgical Approach to Deformed Feet in Spina Bifida (Walker); and Value of Pre-operative Electrodiagnosis in Assessment of Locomotor Function of Lower Limbs in Spina Bifida Cystica (Wilson).

1773 GRANHOLM, LARS. On water shifts in the hydrocephalic brain. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 1-2.

An investigation of the effects of increased fluid pressure on the brains of rabbits revealed no difference in water content between the brains of control and hydrocephalic animals. Intracisternal injections of kaolin were administered to effect hydrocephalus in 11 rabbits. After 5 days specimens containing both gray and white matter were removed from the frontal lobes of the animals. These specimens were weighed, dried to a constant weight, and reweighed. The average specimen weight was 0.420 g for control animals and 0.530 g for hydrocephalic animals. Water content percentage was 80.8 ±0.3 for control rabbits and 81.0±0.2 for hydrocephalic rabbits. Increased water content reported in previous studies must be a local phenomenon and is probably accompanied by functional disturbances. (4 refs.) - *J. K. Wyatt.*

Neurosurgical Reserach Laboratory
and Department of Neurosurgery A
Lasarettet, Lund, Sweden

1774 WEST, KURT A. On pre- and post-operative echoventriculographic findings in hydrocephalic infants and children. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 3-10.

A study of 28 infants and hydrocephalic children with atrioventricular shunts on whom an echoventriculographic method was used to make pre- and post-operative estimations of the width of the supratentorial ventricular system disclosed significant post-operative decreases in the width of the bodies of the

lateral ventricles. A highly significant ($p<0.001$) post-operative decrease was found in the 18 cases in the "functioning" shunt group. The mean age of these children at the time of their operation was 16.6 weeks. A follow-up period lasted until they were at a mean age of 67.8 weeks. The "dysfunctioning" shunt group was composed of 10 cases who were operated on twice. Their mean age at the times of their operations were 8.5 weeks for the first operation and 88.9 weeks for the second operation. The follow-up period lasted until 40 weeks after the second operation. Although decreases before and after the first operation, and before and after the second operation were not significant, a comparison of measurements before the first operation and after the second operation yielded a significant decrease ($p<0.01$). The echoventriculographic tracings were obtained by using the Krautkramer model USIP 9 ultrasound apparatus and a 10 mm in diameter, flat surfaced probe containing an ultrasound emitting barium titanate crystal. Sound wave frequency was emitted at 2 Mc/second. This apparatus was beamed so that the midline structures of the brain, the lateral wall of the opposite ventricle, and the far inside of the skull gave rise to detectable echodeflections on the screen of the oscilloscope. These deflections were photographed with a Polaroid camera and measurements of actual distances were made. (25 refs.) - *J. K. Wyatt.*

Neurosurgical Department A
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Lund, Sweden

1775 SHULMAN, KENNETH, & MARMAROU, ANTHONY. Analysis of intracranial pressure in hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 11-16.

The results of a series of acute experiments in dogs and cats which have examined the criteria of intracranial telemetry suggest that the range of detection provided by this procedure is promising for human intracranial implantation, and the long-term evaluation of hydrocephalus managed by means of pressure-dependent, valve-regulated shunts. These animal experiments indicate that the device has a reasonable detection range, adequate sensitivity, and stability; and that bacteriological control and inertness can be achieved by using a multiple alcohol bath sterility process and paraffin-coated devices. The telemeter is passive, has an indefinite life, and does not require an internal source of energy. It is designed so that increases in intracranial pressure cause measurable decreases in resonant frequency. If used with infants and children with hydrocephalus, this device would provide remote measurements of intracranial pressure which could be used to arrive at a better understanding of compensation, to define the parameters of ventricular dilation with greater accuracy, and as criteria for elective shunt revision. (7 refs.) - *J. K. Wyatt.*

Albert Einstein College of Medicine
New York, New York

1776 FORREST, D. M., & TSINGOGLOU, S. The false fontanelle as a practical method of long-term testing of intracranial pressure. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 17-20.

The provision of hydrocephalic infants and children who have been treated with a ventriculo-atrial shunt with a false fontanelle allows for the long-term detection of intracranial pressure. The false fontanelle is a permanent skull defect which is fashioned in the parietal region. It may be established during the valve insertion operation. The most suitable convexity of the skull for the false fontanelle is the parietal boss. In the most recent technique, the pericranium and the dura are incised in cruciate fashion. The skull is cut through with a 2.5 cm trephine. The flaps over the pericranium are reflected. A 4 cm circle of dura substitute is inserted under the bone and sutured in place. The operation offers no hazard if pressure is reduced by ventricular aspiration before the dura is incised. The false fontanelle is sensitive enough for routine monitoring of intracranial pressure and the test involved is simple enough to be taught to and used by the least intelligent parents. The results of a small trial series have been impressive and it is recommended that a false fontanelle be fashioned for all children who return for revision of a blocked shunt due to the closing of the anterior fontanelle, and for older children whose anterior fontanelle has closed and who require primary valve insertion. (6 refs.) - *J. K. Wyatt.*

Westminister Children's Hospital
London, S. W. 1, England

1777 LORBER, JOHN. The results of early treatment of extreme hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 21-29.

The results of studies of 2 groups of infants born with congenital hydrocephalus and with cerebral mantles which measured 10 mm or less immediately prior to operative treatment suggest that: the majority of infants born with primary congenital hydrocephalus will do well, irrespective of the degree of hydrocephalus, if operative treatment is initiated in the first few months of life; and the prognosis for the intellectual development of infants with severe hydrocephalus associated with myelomeningocele is poor. During the period 1959-1962, the technique of ventriculo-atrial shunting was used with 32 children who were born with myelomeningocele and hydrocephalus. Of the 16 surviving children, only 4 had IQs of 80 or above, and only 1 had an IQ as high as 93. All children with normal IQs had been operated on before the age of 8 weeks, and no child operated on after 2 months of age scored within the range of normal intelligence. Studies of 56 children born between 1959 and 1966 who had uncomplicated congenital hydrocephalus and were treated with the ventriculo-atrial shunt technique reveal that the 46 survivors exhibit a wide variety of IQ. Five children have superior intelligence, 29 have average to good intelligence, 5 are in the EMR range, and 6 are profoundly MR. Four of the children with superior IQs had cerebral mantles which were only 3 mm thick or less at the time of surgery. Children who were operated on before the age of 6 months had a much better chance of normal development. (1 ref.) - *J. K. Wyatt.*

Department of Child Health
University of Sheffield
Sheffield, England

1778 ANDERSSON, HUGO, & LOFGREN, JAN. Hydrodynamic evaluation of shunt performance in hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 30-34.

A method based on the recording of the steady state response of the intraventricular fluid pressure to the slow continuous infusion of fluid into the ventricular system is used to measure the function of ventriculoatrial and ventriculoperitoneal shunts *in situ,* in cases of hydrocephaly where there is doubt about the proper functioning of the shunt. Analysis of pressure changes which follow transient shunt closure are used to calculate shunt function. Patients are maintained under anesthesia with ventilation on a respirator during the measurement period because this procedure requires the achievement of a steady state free from uncontrolled variations in respiration. Intrathoracic pressure must also be avoided, and infusion rates which result in intracranial pressures in excess of 45 cm H_2O have been avoided. The measurement procedure involves the puncturing of the lateral ventricle with a polethylene catheter internally guided by a sharp cannula, through the fontanelle, or a previously placed burr-hole. The catheter is attached to a 3-way stop-cock. One channel is used to obtain a pressure measurement with an electromanometer using an inductance tranducer. Another channel is used for the infusion of Ringer's solution. After steady conditions have been achieved for at least 10 minutes, the shunt is closed, a new steady state is defined, and the pressure is recorded. The possibilities of this method have been tested in 5 cases of infantile hydrocephalus and indicate that the primary value of this procedure occurs when the evaluation of the functional status of the shunt cannot be made through simple palpitation of the pump device. This method does not allow for differentiation between the causes of increased resistance. (4 refs.) *J. K. Wyatt.*

Department of Neurosurgery
University of Goteborg
Goteborg, Sweden

1779 TSINGOGLOU, S., & FORREST, D. M. Therapeutic and prophylactic lengthening of distal catheter of the Holter ventriculo-atrial shunt. In: *Studies in Hydrocephalus and Spina Bifida. (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 35-43.

Prophylactic lengthening of the distal catheter of the Holter ventriculo-atrial shunt provides a solution to problems caused by obstruction of the distal catheter, is technically easier than therapeutic lengthening, and has demonstrated an acceptably low rate of complications. A comparison of the results of 159 therapeutic operations for the lengthening of the distal catheter with 163 operations for the prophylactic lengthening

of the distal catheter revealed that prophylactic surgery resulted in a lower infection rate, a smaller number of revisions, and fewer severe complications. The operations involved either a first lengthening of the distal catheter, lengthening of the catheter after 1 previous revision, or lengthening after more than 1 previous revision. Success in placing the distal catheter in a desirable position was attained in 78.5% of the prophylactic operations and in 63.5% of the therapeutic operations. A change of vein was required in 4.8% of the prophylactic cases and in 26.4% of the therapeutic cases. Routine prophylactic operations were introduced at Westminister Children's Hospital, London, England, in 1966 and are recommended as a means of keeping the shunts of shunt-dependent hydrocephalic children patent and functioning, and as a means of avoiding the difficulties and risks inherent in therapeutic revisions. (4 refs.) - *J. K. Wyatt.*

Westminister Children's Hospital
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1780 KALLEN, BENGT. Early embryogenesis of the central nervous system with special reference to closure defects. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 44-53.

Questions which should be considered by theories that explain the morphogenesis of closure defects in the CNS are: do the malformations occur because of primary non-closure of the neural plate, or do the openings of the neural canal appear secondary because of the breakthrough of a hydromyelic neural tube; and is the overgrowth phenomenon of CNS tissue primary or secondary to non-closure of the neural plate? The neurulation process in the human embryo begins approximately 4 weeks after fertilization and involves the rapid folding of the neural plate into a neural groove which closes to a neural tube. The mesoderm which underlies the neural plate plays an important role in the formation of the CNS. The induction of the neural plate within the surface ectoderm occurs from the roof of the entoderm. The mesodermal notochord and the prechordal plate develop from the entoderm roof. The mesodermal substratum is very important to the neurulation process in that it initiates differentiation in the ectoderm, determines the bilateral symmetry of the CNS rudiment, and has an important role in the folding up of the neural plate to form a neural tube. Factors arising from the mesodermal substratum influence mitotic activity of the early neural tube and therefore, give rise to the framework from which the internal structure of the brain and the spinal cord will originate at a later stage of development. The multitude of interactions between the mesoderm and the neural plate may provide a basis for the analysis of closure defects. (20 refs.) - *J. K. Wyatt.*

Department of Embryology
University of Lund
Lund, Sweden

1781 LENDON, R. G. Studies on the embryogenesis of spina bifida in the rat. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 54-61.

An investigation of spina bifida in the embryos of pregnant rats who had been injected with trypan blue disclosed that: the 3 main types of spina bifida were present in 15- to 20-day-old embryos; open neural plates, the majority of which were accompanied by blebs and hematomata, were present in several 11- to 12-day-old embryos; and the only recognizable defect in 10 11-day-old embryos was single or paired blebs lateral to the neural grooves. Each pregnant rat was administered 2 intraperitoneal injections of 1% aqueous trypan blue, each of which contained 15 mg of the dye, between 7 1/2 and 9 1/2 days of gestation. The types of spina bifida found in the 15- to 20-day-old group were: embryos with a myelocele, minimal vertebral defects, and a normal tail; embryos with a short tail, and a myelocele underlain by a notochord and a vertebral row which exhibited abnormal ventral deflection; and embryos with a short tail, premature termination of the spinal cord, and ventral defects of the vertebral row and notochord. The role played by the blebs and hematomata in the embryogenesis of the older types of spina bifida in rats is uncertain and is the subject of an ongoing investigation. (18 refs.) - *J. K. Wyatt.*

Department of Pathology
Children's Hospital
Sheffield
England

1782 NAIK, D. R., & EMERY, J. L. The position of the spinal cord segments related to the vertebral bodies in children with meningomyelocele and hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 62-68.

Postmortem analyses of the spines of 15 normal children and 20 children with spina bifida and hydrocephalus revealed that in children with lumbar meningomyelocele and hydrocephaly, the positions of the spinal cords were normal in the upper thoracic levels, the segments in the cervical spines were compressed, and the segments cephalad to the meningocele were elongated and caudally displaced in the lower thoracic and lumbar levels. A method of dissection which involved transfixing the spinal cord with small steel pins *in situ* and taking radiographs of the pinned cord against the spinal column was used. This methodology facilitated the measurement of lengths of the spinal neural segments at a variety of levels, and the determination of the relationship between the spinal cord level and the vertebral bodies. The elongation and caudal displacement of the segments cephalad to the meningocele in the lower thoracic and lumbar levels found in children with meningomyeloceles suggests that the cranial displacement of the lumbar cord segments which normally occurs during later intrauterine life does not occur in the presence of meningomyelocele. Children with meningomyeloceles appear to have an abnormal extension of the thoracic cord/body relationship. (11 refs.) - *J. K. Wyatt.*

Department of Radiology
and Pathology
Children's Hospital
Sheffield, England

1783 DUCKWORTH, T., SHARRARD, W. J., LISTER, J., & SEYMOUR, N. Hemimyelocele. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 69-75.

Hemimyelocele is a specific type of spinal cord abnormality in which the spinal cord is split into 2 unequal parts, only 1 of which bears the myelocele plaque. One part of the spinal cord is in complete continuity and is usually enclosed in a separate dual sheath. An investigation of a series of 16 patients with hemimyelocele revealed that varying degrees of limb asymmetry were noted either at birth or in early childhood in all cases, clinical scoliosis which progressed steadily over the years was observed either at birth or in early childhood in all cases, abnormality of the spinal cord and meninges had been recorded in 10 patients on whom specific findings at the initial operation for closure of the defect were available, and all patients showing a normally functioning lower urinary tract had 1 fully innervated leg. This syndrome is sufficiently characteristic to allow for diagnosis prior to spinal exploration. Early recognition has prognostic significance in that it implies the need for early measures to prevent the progression of the scoliosis. (9 refs.) - *J. K. Wyatt.*

The Children's Hospital
Western Bank
Sheffield, England

1784 STARK, GORDON. The pathophysiology of the bladder in myelomeningocele and its correlation with the neurological picture. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology,* Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 76-86.

The results of a study of 40 children suffering from myelomeningoceles suggest that there is a definite relationship between specific types of bladder disturbance and neurological lesions in the lower limbs. The Ss had been studied since the neonatal period and at the time of this report have a mean age of 18 months (age range 2 wks to 5 1/4 yrs). Since it is assumed that the motor innervation of the bladder arises from the second through the fourth sacral segments, Ss were grouped according to the condition of these segments. Normal bladder function within the assessment limits at this age was found in a group of 8 Ss who had 1 or both lower limbs normal or showed only a mild pyramidal lesion. The majority of a group of 8 Ss who had some voluntary function of S 2-4 on at least 1 side evidenced an active detrusor and outlet obstruction at the level of the external sphincter. About 1/2 of these Ss evidenced bladder sensation. None of the Ss in a group of 12 Ss who exhibited either extensive or limited and patchy reflex activity only in S 2-4 evidenced bladder sensation, and all but 1 S had reflex activity in the bladder, which was often inefficient. Twelve Ss, who did not evidence either voluntary or reflex function below S_1, exhibited a dribbling incontinence. Poor bladder drainage was evident in 6 of these Ss. A flat featureless tracing of detrusor activity was recorded for 11 Ss, and only 1 S showed any signs of bladder sensation. These

findings suggest that there is a clear correlation between evidence of S 2-4 function in the lower limbs and detrusor activity in the bladder. Full assessment of the bladder function of children with myelomeningoceles is essential in the neonatal period so that outlet obstructions can be recognized and relieved. (26 refs.) - *J. K. Wyatt.*

Department of Child Life
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Scotland

1785 PEKAROVIC, E., ROBINSON, W., LISTER, J., & ZACHARY, R. B. Pressure variations in intestinal loops used for urinary diversion. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 87-92.

Studies of intraluminal pressure variations in intestinal loops used for urinary diversion in 20 children support the position that an intestinal loop with a low pressure within the lumen is likely to function well and evidence no deterioration, while an intestinal loop with high intraluminal pressure is likely to evidence progressive hydronephrosis. There were 9 cases in which the intraluminal pressures of the intestinal loop were high. Seven of these high pressure cases evidenced deterioration of the upper renal tract. Evaluation of the upper renal tract was not possible in 2 of the high pressure cases because gross dilation had occurred in the pelvis and calyces before the construction of the ileal loop. Eleven cases exhibited low intraluminal pressure and 10 of these had good upper renal tracts with no evidence of progressive dilation. All 9 of the high pressure cases and 5 of the low pressure cases had extraperitoneally situated ileal loops. Possible explanation of high intraluminal pressure are technical error in the construction of the ileal conduit, the length of time the patient has had the loop, and/or the presence of an intrinsic factor in some patients. (17 refs.) *J. K. Wyatt.*

Congenital Anomalies Research Unit
Department of Child Health
Sheffield, England

1786 LORBER, JOHN, & FORMBY, DAVID. Treatment of persistent urinary tract infections with gentamicin. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 93-99.

Treatment of 21 children with gross urinary tract infection resulting from neurogenic bladder by a daily intramuscular dosage of either 2 mg or 4 mg/kg of gentamicin, an aminoclycoside antibiotic drug, resulted in prompt clearing of the infection in 18 cases. There were 2 cases of relapse and 2 cases of reinfection within 1 month after the cessation of gentamicin therapy in the 5 children who were treated with 2 mg/kg daily. The 15 children who were treated with 4 mg/kg daily evidenced 3 cases of reinfection and 3 cases of relapse within 1 month after therapy cessation. Organism sensitivity to gentamicin was retained in 4 of the 5 relapses and in 3 of the 5 reinfections. The 2 cases of failure appeared to be due to insufficient gentamicin level in the urine related to the organism's MIC requirements. Urinary diversion procedures because of progressive hydronephrosis had been carried out on 12 children prior to inclusion in this trial. All children evidenced much reduced renal function, and 17 exhibited hydronephrosis. (12 refs.) *J. K. Wyatt.*

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University of Sheffield
Sheffield, England

1787 GO, K. G., LAKKE, J. P. W. F., & BEKS, J. W. F. A harmless method for the assessment of the patency of ventriculoatrial shunts in hydrocephalus. In: *Studies in Hydrocephalus and Spina Bifida (2). (Developmental Medicine and Child Neurology*, Supplement No. 16.) London, England, William Heinemann Medical Books, 1968, p. 100-106.

A simple method based on the principle that if the temperature of the flowing liquid in a patent ventriculo-atrial shunt is varied at 1 point in its course, the change in temperature will be carried along by the moving fluid and can be recorded at a later point in the flow, has been used to determine the patency of ventriculo-atrial shunts in hydrocephalus. A total of 67 examinations of the patency of the Holter and Pudenz systems, 1 ventriculo-peritoneal shunt, and 1 Torkildsen drainage system were carried out with a thermosensitive device, a cube of ice, and a Wheatstonebridge system connected to a recorder. Measurement accuracy was in the order of

90%. The usefulness of this method must be determined by comparing its reliability with that of other methods of patent determination. (2 refs.) - *J. K. Wyatt.*

Department of Neurosurgery
University Hospital
Groningen, The Netherlands

1788 CANTU, ROBERT C., & MICHELSEN, JOST J. Long-term follow-up of nine cases of ventriculo-cisternostomy for non-neoplastic aqueductal occlusion. *Journal of Neurology, Neurosurgery, and Psychiatry*, 30(6):556-558, 1967.

The follow-up data on 9 cases of Torkildsen's ventriculo-cisternostomy show that the procedure is rewarding in cases of non-neoplastic aqueductal occlusion. The data, which cover 8- to 27-year post-operative periods and include the pre-operative symptoms, reveal that all had intraventricular pressures above 250 mm of CSF, 7 had papilloedema, and 4 were ataxic or MR. All made good progress post-operatively, ataxia was eliminated, and most other symptoms were eliminated. One patient who was MR showed a marked improvement in his school work. Operative complications found in the newer shunt procedures can be avoided through the careful execution of the Torkildsen method. (5 refs.) - *M. T. Lender.*

Massachusetts General Hospital
Boston, Massachusetts 02114

1789 IGNELZI, RONALD J., & BUCY, PAUL C. Cerebral hemidecortication in the treatment of infantile cerebral hemiatrophy. *Journal of Nervous and Mental Disease*, 147(1): 14-30, 1968.

Four patients (CA 6-20 yrs) with infantile cerebral hemiatrophy and contralateral spastic hemiparesis, intractable convulsive seizures, retarded intelligence, and severe personality and behavior disturbances were treated by cerebral hemidecortication. The surgical procedure involved complete removal of the cerebral cortex, leaving the basal ganglia and thalamus intact. After post-operative periods of 2-11 years, the convulsions were absent and favorable improvements in personality and behavior were noted in all cases. Marked improvement in ability to walk was observed and, in 3 of the 4 cases, the hand and fingers of the involved hand could be opened. The world literature in regard to this operation was reviewed. In the cases found with sufficient data for comparison of pre- and postoperative status of the patient, 57.9% showed improved motor function, 76% showed absence of convulsions, 95% showed a marked improvement in personality, and 82% showed some improvement in intelligence, following cerebral hemidecortication. The uniformly good results obtained indicate that this procedure may be a very beneficial form of treatment. (52 refs.) - *M. G. Conant.*

Division of Neurosurgery
Chicago Wesley Memorial Hospital
Chicago, Illinois

Unknown or Psychogenic Cause with Reaction Manifest

1790 LANDWIRTH, JULIUS, SCHWARTZ, HERBERT A., & GRUNT, JEROME A. Prader-Willi syndrome. *American Journal of Diseases of Children*, 116(2):211-217, 1968.

A boy diagnosed as having the Prader-Willi syndrome was followed longitudinally for 17 years. At birth, the S was hypotonic, had difficulty feeding, and during infancy, all developmental milestones were delayed. From about 2 1/2 years of age, he became extremely obese (97th percentile), while his height lagged behind (below 3rd percentile). At age 5 years, he was tested for intelligence and was considered low-normal or high-borderline. Hypogonadism was present and no endocrine treatment was able to remedy this state. The patient developed polyuria, polydipsia, and weight loss when he was 17 years old and was diagnosed as having typical juvenile diabetes (acetonuria, ketoacidosis, and a diminishing demand for exogenous insulin). It is suggested that the basic defect in this disorder is pituitary dysfunction and that etiological factors (genetic or postconceptual lesions) are operative prenatally and involve the hypothalamic-pituitary-thyroid and hypothalamic-pituitary-gonadal axes. (17 refs.) *L. Negulesco.*

Yale-New Haven Medical Center
789 Howard Avenue
New Haven, Connecticut 06504

1791 PADFIELD, C. J., PARTINGTON, M. W., & SIMPSON, N. E. The Rubinstein-Taybi syndrome. *Archives of Disease in Childhood*, 43(227):94-101, 1968.

A survey of 4,838 institutionalized MR patients discovered 16 with the Rubinstein-Taybi syndrome; 1 case was discovered in an outpatient clinic in Ontario, Canada. All Ss were MR (IQ 15 to 59; mean 36), all had broad thumbs and great toes, high arched palate, microcrania, and peculiar facies which caused them to resemble one another more than their own siblings. The Ss were short in stature and demonstrated retarded motor development as well as MR. The dermatoglyphs from these patients were in agreement with those reported in the literature. Karyotypes were normal, amino acids in the blood and urine were normal, and the prenatal histories were unremarkable; therefore, the etiology of this syndrome remains obscure. (15 refs.) - *K. Drossman.*

Queen's University
Kingston, Ontario
Canada

1792 SALMON, M. A. The Rubinstein-Taybi syndrome: A report of two cases. *Archives of Diseases in Childhood*, 43(227): 102-106, 1968.

Two male infants with large flattened thumbs and great toes, peculiar facies, skeletal anomalies, and abnormal dermatoglyphics were diagnosed as having the Rubinstein-Taybi syndrome. Although these infants were not tested for MR, MR does appear to be invariable in this disorder. Most cases of this syndrome have been reported from the United States, but 1 of these infants was from the United Kingdom, and the other was from Afghanistan. Blood and urine studies on both Ss were normal, the karyotypes were normal; and although there were numerous organ and skeletal defects, no specific biochemical disorders could be demonstrated. One S had a family history which included congenital abnormalities; however, the other child's prenatal history and family pedigree were unremarkable. This syndrome can be recognized at birth and the palmar dermatoglyphs may prove to be a diagnostic characteristic. The etiology of this well delineated syndrome remains obscure. (17 refs.) - *K. Drossman.*

Department of Pediatrics
St. Helier Hospital
Carshalton, Surrey, England

1793 ANDERSON, J. F., SMYTH, H. G. Mental retardation with facial abnormalities, broad thumbs and toes. *Journal of Mental Subnormality*, 14(2):43-49, 1968.

Three adult cases of the Rubinstein-Taybi syndrome, all with similar abnormal facial characteristics, broad thumbs and great toes, and subnormal IQ are described. Although it is not always easy to distinguish Rubinstein-Taybi syndrome from other unclassified defects, these Ss were grouped together because of the resemblance in facial appearance and body build. No coincident pattern was found in either family or personal history, nor was there any consistent pattern in dermatoglyphic analysis. (6 refs.) - *B. Parker.*

Royal Dundee Liff Hospital
Dundee, Scotland

1794 SINNETTE, C., & ODEKU, E. L. Rubinstein-Taybi syndrome. *Clinical Pediatrics*, 7(8):488-492, 1968.

The Rubinstein-Taybi syndrome of multiple congenital anomalies characterized by MR, broad thumbs and great toes, high arched palate, eye deformities, heart defects, and recurrent respiratory infections and previously recognized in the United States, Europe, and Japan was discovered in an African (Nigerian) infant at the time of her birth. Born prematurely to a mother with severe anemia the child had multiple ectodermal anomalies (hirsuitism, nevus on forehead, bilateral corneal opacities, broad thumbs, and syndactyly) and subsequent retardation of psychomotor development. Karyotypic examination was normal. Overlapping clinical features of this syndrome and the Smith-Lemli-Opitz syndrome suggest that these might represent different expressions of the same entity. (12 refs.) *E. L. Rowan.*

Department of Pediatrics and
Neurosurgery Unit
University College Hospital
Ibadan, Nigeria

1795 ROY, FREDERICK H., SUMMITT, ROBERT L., *HIATT, ROGER L., & HUGHES, JAMES G. Ocular manifestations of the Rubinstein-Taybi syndrome. *Archives of Ophthalmology*, 79(3): 272-278, 1968.

Ocular abnormalities found in addition to motor retardation, MR, broad toes and thumbs,

and high arched palate, in all 29 cases of the Rubinstein-Taybi syndrome in the literature include anti-mongoloid slant (29%), strabismus (72%), epicanthus (58%), refractive error (55%), high arched brow (24%), and long lashes (28%). Cataract, ptosis, enophthalmos, optic atrophy, corneal scar, coloboma and obstruction of the nasolacrimal canal occurred less frequently. Three cases (1 girl, 2 boys; CA 8 days to 27 mos) reported here have the diagnostic clinical symptoms of the syndrome. One of these Ss presented with respiratory distress, cataract in the right eye, and a corneal leukoma on the left, and died on the eighth day of life despite vigorous therapy. Differential diagnosis of this syndrome should not be a problem. While the cause of this syndrome is unknown, evidence suggesting the possibility of recessive inheritance, polygenic inheritance, or a new dominant mutation should be considered. (14 refs.) - *R. D. Nunn.*

*Division of Ophthalmology
858 Madison Avenue
Memphis, Tennessee 38103

1796 WILSON, MIRIAM G. Rubinstein-Taybi and D_1 trisomy syndromes. *Journal of Pediatrics,* 73(3):404-408, 1968.

Three infants who had D trisomy but who also had broad thumbs and great toes are described. The Rubinstein-Taybi syndrome previously had been differentiated from D trisomy by the presence of broad thumbs and great toes; 2 of these infants were mistakenly diagnosed as having the Rubinstein-Taybi disorder. Care should be taken in the differential diagnosis of these syndromes because of the possible co-existence of broad thumbs and first toes in both syndromes and the possibility that broad thumbs and great toes may be more frequent in D_1 trisomy than previously recognized. (11 refs.) - *M. T. Lender.*

Department of Pediatrics
University of Southern
California Medical Center
Los Angeles, California 90033

1797 SEELENFREUND, MORTON H., GARTNER, SAMUEL, & VINGER, PAUL F. The ocular pathology of Menkes' disease. *Archives of Ophthalmology,* 80(6):718-720, 1968.

In 1 case of Menkes disease, a sex-linked recessive disorder characterized by cerebellar and focal cerebral degeneration, white kinky hair, failure to thrive, focal or generalized seizures, SMR, and early death, histological examination of the eyes showed microcysts of the iris pigment epithelium, a paucity of retinal ganglion cells, thinning of the nerve fiber layer, and partial atrophy of the optic nerve. In a second case, an eye exam demonstrated that the S was unable to follow light, had sluggish pupillary reaction to light and some degree of disc pallor, but normal appearing retinae. The biochemical basis of the central nervous system defect is unknown. (4 refs.) - *R. D. Nunn.*

Retina Service
Massachusetts Eye and Ear Infirmary
243 Charles Street
Boston, Massachusetts 02114

1798 NITZAN, MENACHEM, SPITZER, SIMON, & ELIAN, EZRA. Obesity-hypoventilation (Pickwickian) syndrome in a child. *Israel Journal of Medical Sciences,* 4(2):264-269, 1968.

MR may be prevented when recognized as 1 aspect of the Pickwickian syndrome in a child. Case material is presented showing that weight reduction to normal standards in a child with this syndrome, was accompanied by a disappearance of dyspnea, cyanosis, and somnolence. Exercise tolerance, pulmonary function tests, and performance on all parameters of the WISC, markedly improved during 16 months of weight reduction. The chief mechanism responsible for the development of this syndrome is exogenous obesity associated with excessive appetite and hypoventilation occurs when the lungs are crowded by the fat beneath the diaphragm and upon the chest wall. Right sided heart failure and polycythemia were not found in this case due to early diagnosis and treatment. (14 refs.) - *L. E. Clark.*

Department of Pediatrics
Beilinson Hospital
Petah Tikva, Israel

1799 MORGAN, JOHN L., HOLCOMB, THOMAS M., MORRISSEY, ROBERT W. Radiation reaction in ataxia telangiectasia. *American Journal of Diseases of Children,* 116(5):557-558, 1968.

A 9-year-old child was diagnosed as having ataxia telangiectasia at age 7. After the appearance of a mediastinal mass 2 years later and confirmation of Hodgkin's disease

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by scalene node biopsy, radiotherapy was initiated. Rapid deterioration of the patient's condition and marked radiation reaction necessitated discontinuance of this mode of treatment. The adverse reaction of this patient is similar to the experience reported previously by other investigators and suggests need for caution in the use of radiation for treating patients with malignancy and ataxia telangiectasia. (2 refs.) *Journal summary.*

326 Dartmoor Drive
San Antonio, Texas 78227

1800 HARDMAN, J. M., ALLEN, L. W., BAUGHMAN, F. A., & WATERMAN, D. F. Subacute necrotizing encephalopathy in late adolescence. *Archives of Neurology*, 18(5):478-486, 1968.

The fiftieth reported case of necrotizing encephalopathy occurred in a 17-year-old boy (the oldest patient recorded) who had shown physical and mental retardation for at least 12 years and suffered rapid terminal decline. There were minimal brain stem signs in addition to progressive weakness, lethargy, and respiratory difficulty. Autopsy revealed lesions in the midbrain and pontine tegmentum, medullary reticular formation, basal ganglia, and visual system. Microscopically, the lesions were of variable age and characterized by well circumscribed necrotic foci containing proliferated and dilated vessels and scattered intact neurons. Although this entity is similar to Wernicke's encephalopathy in brain stem involvement, the latter also shows damage in mammillary bodies and hypothalamus and is associated with thiamine deficiency. Histologic features of necrotizing encephalopathy suggest dysfunction of blood-brain barrier and the pattern conforms to the distribution of certain enzymes in the brain; however, these mechanisms need further study. (39 refs.) - *E. L. Rowan.*

Armed Forces Institute
of Pathology
Washington, D. C. 20305

1801 CENDROWSKI, W. S. Multiple sclerosis: Discordance in three pairs of dizygotic twins. *Journal of Medical Genetics*, 5(4): 266-268, 1968.

In a survey of 300 patients with multiple sclerosis in Poland in 1968, 3 pairs of twins were found in which only 1 member of the pair had the disease. A review of the literature since 1930 demonstrated that concordance in twin pairs in respect to multiple sclerosis does not exist; therefore, it appears that genetic factors do not play a major role in the etiology of multiple sclerosis. It would seem the incorporation of viral material into the host cells thus triggering an auto-immune process may be a factor in this syndrome. (24 refs.) - *K. Drossman.*

Neurological Clinic
Psychoneurological Institute
Pruszkow, Poland

1802 ADO, A. D., & TSAREGORODTSEVA, T. M. Mekhanizmi allergicheskikh Reakcii pri autoimmunnikh porazheniyakh nervnoi sistemi (Mechanism of allergic reactions in autoimmune lesions of the nervous tissue). *Zhurnal Nevropatologii i Psikhiatrii*, 68(3): 321-326, 1968.

Allergic reactions in demyelinogenetic lesions of the nervous system are discussed in regard to etiology, pathogenesis, compensatory mechanisms in the organism, cellular and hormonal influences, and serum antibodies. (53 refs.) - *M. Drossman.*

No address

1803 ATTAL, C. La maladie de Fabry (Fabry's disease). *Medecine Infantile*, 74(2): 141-142, 1968.

Clinical aspects of Fabry's disease, which is primarily a skin disease, are discussed. The disorder appears in infancy, is connected with accumulation of ceramide-glucose-galactose-galactose in endothelial tissue and is transmitted by a sex-linked recessive mode. (7 refs.) - *M. G. Conant.*

No address

1804 GAMSTORP, I. Polyneuropathy in children. Proceedings of the Fifteenth Northern Pediatric Congress (Bergen, Norway, June 28-July 1, 1967) in *Acta Paediatrica Scandinavica*, Supplement 177(4):60-61, 1967.

Forty-two Ss (CA less than 16 yrs) with polyneuropathy were categorized into 2 groups: those having symptoms associated with CNS involvement (13 Ss); and those having peripheral neuropathy (28 Ss). One infant could not be classified. Included in the CNS involvement group were: late-infantile metachromatic leucodystrophy (2 Ss); severe neurological complications (1 S); Friedrich's ataxia (2 Ss); Guillain-Barre syndrome (3 Ss); cerebellar ataxia and convulsions (1 S); primary myopathy (1 S); chronic Wernicke encephalopathy (2 Ss); and Krabbe's disease (1 S). Those with peripheral neuropathy were found to have: diabetic mellitus (11 Ss); Guillain-Barre syndrome (2 Ss); a positive family history of neuropathy (12 Ss); and the etiology in 3 Ss was undetermined. (No refs.) - *J. P. West.*

Department of Pediatrics
University Hospital
Lund, Sweden

1805 HARMS, ERNEST, ed. *Pathogenesis of Nervous and Mental Diseases in Childhood.* New York, New York, Libra Publishers, 1968, 293 p. $8.50.

The pathogenic approach to child psychiatry is diametrically opposed to the symptomatological-phenomenological approach and views pathologies as conditions which deviate from the normal. This approach permits better insight into the basic pathogenic dynamics, allows for the development of a new and solid basis for pathological classification, and for the use of a direct, highly concrete approach to practical psychotherapy. The application of this approach to psychotherapy begins with the establishment of the basic normal psychological patterns, and then identifies deviations from them. Emphasis is placed on the provision of concrete psychological experiences and on the use of a practical therapeutic attitude. Pathogenesis may be related to growth, organic inferiority, environment, psychology, ego development, intelligence, feelings and emotions, thinking, and will development. Therapeutic methods which may appropriately be used either alone or in combination to provide total therapy include neurological therapy, physiotherapy, pharmacotherapy, shock therapy, psychotherapy, group therapy, family therapy, multi-familial and community therapy, occupational therapy, remedial education, and remedial adjustment or readjustment. This broad, intensive, systematic presentation of a total view of childhood psychopathogenesis should be of interest to psychiatrists, psychologists, pediatricians, geneticists, neurologists, and counselors. (467 refs.) - *J. K. Wyatt.*

CONTENTS: Pathogenesis of Mental Diseases in Childhood (Harms); Organ Inferiority and Psychiatric Disorders in Childhood (Shulman & Klapman); Pathogenesis of Neurological Disorders in Children (Gold); Mental Disorders in Children Due to Endocrine Dysfunctions (Margolese); Constitution and Pathogenesis of Personality and Behavior in Children (Tenney & Kline); The Importance of Kretchmer's Constitutional Typology for the Psychopathology of Adolescents (Lempp-Tuebingen); The Sociopathology of Childhood (Scott); and Behavioral Genesis of Mental Diseases in Childhood (Korn).

1806 SHULMAN, BERNARD, & KLAPMAN, HOWARD. Organ inferiority and psychiatric disorders in childhood. In: Harms, Ernest, ed. *Pathogenesis of Nervous and Mental Diseases in Children.* New York, New York, Libra Publishers, 1968, p. 49-62.

The hypothesis is advanced that the compensatory development provoked by organ inferiority may occur in the psychic life as well as in the body of an individual. The occurrence of a functional psychiatric disorder requires the prior existence of psychological stress and is not an inevitable consequence of physical defect. Psychic stress may induce a psychiatric disorder when organ inferiority is experienced by the person as injurious to development, acceptability and/or worthwhileness as a human being. Severe stress may be aroused in an MR child when challenged to keep up with schoolmates, or when he becomes aware of the superior accomplishments of a younger sibling. Parental attitudes and sibling and peer relations appear to have a greater influence on the personality development of brain-damaged and/or MR children than does the existence of organic defect. (10 refs.) - *J. K. Wyatt.*

1807 GOLD, GEORGE. Pathogenesis of neurological disorders in children. In: Harms, Ernest, ed. *Pathogenesis of Nervous and Mental Diseases in Children.* New York, New York, Libra Publishers, 1968, p. 63-154.

Neurological disorders that can occur in childhood include CP, demyelinating diseases, epilepsy, inflammatory conditions, MR, myopathies, and neoplastic processes. The term MR is used to designate those individuals who fall below certain acceptable intellectual and behavioral norms, and does not refer to 1 specific condition caused by specific etiological factors. There is a relationship between some forms of MR and anatomical alterations, deep-seated alterations in body functions, heredity, environment, and/or consanguinity. Forms of MR which may arise from genetic conditions include undifferentiated "simple" types, chromosomal anomalies, enzymatic factors, and/or unknown hereditary factors. Environmentally conditioned MR has been found to be related to traumatic, immunological, and/or adaptive factors. MR is also associated with undetermined inflammatory and degenerative conditions, and with conditions which have an undetermined embryological basis. (247 refs.) - *J. K. Wyatt.*

1808 DAS, J. P. Cultural deprivation. *Indian Journal of Mental Retardation,* 1(1):1-3, 1968. (Editorial)

Cultural deprivation prevents children from developing to their maximum potential and capability and contributes to poor verbal skills, inadequate performances, and short attention span. In the United States, cultural deprivation is found primarily in the low socioeconomic communities; whereas, in India, the caste system is an important modifier. There is a need for studies on socioeconomic status and caste interactions as related specifically to cultural deprivation. Recent studies have shown that enriching experiences and environments increase intelligence. Verbal stimulation from 4 to 8 years of age has a most significant effect on the growth and intellectual development of a child and poor sensory training can retard an individual's perceptual abilities. Prevention of intellectual subnormality can sometimes be accomplished by utilizing remedial measures early in life. Additional research is needed if mental deficiency created by economic, cultural, and social factors is to be eliminated. (No refs.) - *S. Half.*

No address

1809 REISS, M., HATTORI, H., HILLMAN, J. C., SIDEMAN, M. B., & PLICHTA, E. S. Study of a group of familial-cultural retardates showing rapid transition from wakefulness to sleep. *Journal of Mental Deficiency Research,* 12(1):1-8, 1968.

Four male familial-cultural retardates (IQ 45-65) who fell asleep unusually rapidly demonstrated marked differences in respiratory metabolism when compared to 16 controls of similar intellectual ability and age (11 to 17 yrs). All 4 Ss were below normal height and weight percentiles and had normal endocrine parameters as measured by growth hormone, protein-bound iodine, butanol extractable iodine, urinary 17-ketosteroids and corticosteroids; however, high amounts of substances in the urine which inhibit seratonin, gonadotrophin, and spontaneous activity were found. Measurements of seratonin inhibition were performed on rat uteri suspended in Tyrode solution and gonadotrophin inhibition was measured by the response of ovaries and uteri weight in experimental mice. The pineal gland is proposed as the source for this inhibitor substance. Continuous EEG recordings were used to determine sleep stages by Williams criteria. Oxygen consumption of the rapid sleepers was decreased by 30 to 40% in stage 4 compared to stage 0 while the controls showed a decrease of only 11 to 12%. (8 refs.) - *W. Asher.*

Willowbrook State School
Staten Island, New York 10314

1810 A chat with Dr. Dubos: "Neonatal deprivations can be permanent ones." *Journal of the American Medical Association,* 205(10): 34-35, 1968.

In an interview concerning early environmental effects on the physiological growth and development of the neonate, Dr. Dubos in outlining his motives for study in this area, discusses the results of his laboratory studies with mice which include: nutritionally inadequate diets; variations in biochemical and metabolic characteristics; indelible effects of early (neonatal) infections; and the parallelism which exists between the reactions of experimental mice exposed to a crowded environment and the human urban population submitted to similar conditions. (No refs.) - *J. P. West.*

Convulsive Disorders

1811 AFIFI, ADEL K., & *VAN ALLEN, MAURICE W. Cerebellar atrophy in epilepsy: Pneumographic and histological documentation of a case with psychosis. *Journal of Neurology, Neurosurgery, and Psychiatry,* 31(2): 169-174, 1968.

The case of a young female epileptic who had convulsions from 5 years of age and who developed persistent and disabling ataxia at the age of 18 years while taking diphenylhydantoin is presented. She had been treated with phenobarbital, diphenylhydantoin (Dilantin), primidone (Mysoline), and methyl phenylhydantoin (Mesantoin) at various times since the age of 7 years when she was first examined. At 10 years of age, diplopia, ataxia, incoordination, and nystagmus appeared and subsided after discontinuation of diphenylhydantoin. Drug therapy was resumed intermittently until age 16 years when symptoms suggesting schizophrenia appeared and were treated by 10 electroconvulsive treatments and chlorpromazine hydrochloride (Thorazine). Three pneumoencephalograms showed the development of cerebellar atrophy and examination of cerebellar tissue obtained during exploratory surgery revealed changes typical of parenchymatous cortical cerebellar atrophy. A syndrome of epilepsy, cerebellar degeneration, and organic psychosis is hypothesized and the possible role of diphenylhydantoin in the development of this syndrome is discussed. (15 refs.) - *M. G. Conant.*

*Department of Neurology
University of Iowa Hospital
Iowa City, Iowa

1812 HARPER, J. R. True myoclonic epilepsy in childhood. *Archives of Disease in Childhood,* 43(227):28-35, 1968.

Myoclonic epilepsy is a rare but distinct childhood seizure pattern described in 14 children (3.8% of seizure patients admitted to clinic) whose clinical picture included violent muscular contractions without warning, brief attacks, and slight post-ictal disturbance. The average age of onset was 3 1/2 years (9 children had preceding epileptic attacks, usually grand mal) and seizures were very resistant to drugs; however, most children improved spontaneously. Mild organic damage (requiring special school) was noted in 6 but only 2 showed a neurological deficit. All had abnormal EEGs with bouts of atypical spike and wave activity and often with the polyspikes characteristic of adult myoclonic epilepsy. Myoclonic epilepsy in childhood must be differentiated from akinetic attacks and from the infantile spasm syndrome which is characterized by onset during the first year of life, severe MR, hypsarrythmia on EEG, and an increased mortality. (13 refs.) *E. L. Rowan.*

Birmingham Children's Hospital
Birmingham 16, England

1813 PRATT, KENNETH L., MATTSON, RICHARD H., WEIKERS, NORBERT J., & WILLIAMS, RUSSEL. EEG activation of epileptics following sleep deprivation: A prospective study of 114 cases. *Electroencephalography and Clinical Neurophysiology,* 24(1):11-15, 1968.

Of 114 patients with a clinical history of epilepsy and a normal or borderline interictal EEG, 47 (41%) had unequivocal EEG activation after 24-26 hours of sleep deprivation. Previously nonresponsive to the traditional activation techniques of hyperventilation and photic stimulation, these individuals demonstrated spike and wave complexes, focal spikes or sharp waves, or electrographic ictal episodes on the repeat examination. Although 18% of this activation was attributed to sampling (activation was also demonstrated on a third non-sleep-deprived tracing) and 28% to the associated drowsiness, the awake sleep-deprived state itself was responsible for activation in the remainder. There was no significant relationship between activation and age, sex, type of clinical seizure, etiology of seizure, onset of seizures, or medication. Sleep deprivation is a simple, safe, and effective technique for producing activation in epileptics. (7 refs.) *E. L. Rowan.*

Albany Medical Center Hospital
Albany, New York

1814 FOLSOM, ANGELA T. The epilepsies. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., The Council for Exceptional Children, 1968, p. 62-86.

Epilepsy is a physiological phenomenon which has both psychological and sociopsychological concomitants. The term epilepsy implies recurrent seizures, the observable symptom of an abnormal electrical discharge in the brain. To arrive at an accurate diagnosis of epilepsy, it is important to have a good description of the seizures, including the person's subjective experiences. The unreal sociopsychological attitude associated with the word epilepsy has been disastrous for many persons. Anachronistic laws, driving restrictions, employment discrimination, and marriage laws reinforce outmoded beliefs. A person with epilepsy may develop psychological problems related to his perception of himself as an epileptic and this is the result of an unrealistic structuring of perceptions of epilepsy around 1 of 2 extreme poles: "I am an epileptic and therefore very sick," or "I am not really sick, and if I ignore it, it will just go away." These personality adjustments appear to be an attempt to adjust to an ambiguous perceptual situation and are largely a reaction to the response of the social milieu. Therapy or discussion groups which focus on the realistic limitations of the individual have been successful in shifting self-perception and in helping persons with epilepsy live realistically with their illness. (3 refs.) - *J. K. Wyatt.*

1815 MILLICHAP, J. GORDON. *Febrile Convulsions.* New York, New York, MacMillan, 1968, 184 p. (Price unknown).

A comprehensive analysis of the significance, etiology, management, and prognosis of febrile convulsions is presented. One-half million children are affected in the United States; original clinical data are lacking from many other areas of the world. Children between ages 6 months and 3 years usually suffer from febrile convulsions due to upper respiratory infections. Convulsions are generalized mainly, and clonic movements are frequently observed. Behavioral disorders are frequently associated with febrile convulsions, and birth trauma, anoxia, and psychomotor retardation are less frequently associated. The EEG is of prognostic significance and is recommended in recurrent febrile convulsions in order to detect children susceptible to spontaneous seizures. The height of the fever, diagnosis, and immune response are the chief factors in the etiology of febrile convulsions. Barbiturates, tepid baths, and antibiotics used discriminately are the standard treatment. Continuous prophylactic anticonvulsants are indicated in prolonged febrile seizures, seizure patterns in the EEG, and persisting abnormal neurological abnormalities. Indications for continuous anticonvulsants are less clear cut in frequent recurrences of febrile seizures, focal seizures, onset after 5 years of age, or febrile seizures in females. Medications should be withdrawn when the child reaches school age, unless there are complications. Research is needed in: the global epidemiology of febrile convulsions; the causative roles of viruses, bacteria, and toxins; genetic and biochemical defects leading to increased susceptibility to febrile seizures; evaluating new drugs for combating fever and convulsions; and study of the factors relating immaturity of the CNS to lowered febrile seizure thresholds. This book should be of interest to physicians, pediatricians, neurologists, and researchers. (270-item bibliog.) - *L. E. Clark.*

CONTENTS: Definition and Statistics; Clinical Evaluation and Manifestations; Electroencephalography and other Laboratory Tests; Etiological Factors, Mechanism, and Seizure Threshold; Prognosis and Sequelae; Treatment of Febrile Convulsions; and Experimental Febrile Convulsions, Artificial Fever, and Hyperpyrezia.

1816 CARTER, SIDNEY, & GOLD, ARNOLD. Convulsions in children. *New England Journal of Medicine,* 278(6):315-317, 1968.

The successful management of a convulsive disorder in infancy or childhood requires accurate identification of seizure type, definition of etiologic factors, and the proper use of anticonvulsant medication. In addition to identifying the classical grand mal pattern, the physician must be alert to infantile myoclonic spasms, psychomotor attacks, petit-mal seizures, sensory-precipitated epilepsy, and even recurrent headaches and abdominal pain as evidence of seizure activity. The group of "idiopathic" seizures grows smaller as symptomatic patterns secondary to biochemical, physiological, and neuropathological lesions are identified. While biochemical or metabolic regulation or surgical intervention is appropriate in selected cases, the majority of children with recurrent seizures requires anticonvulsants. Because serious side-effects may limit the effectiveness of time-honored drugs such as diphenylhydantoin, mephenytoin, and trimethadione, new compounds such as ethosuximide for petit

mal and diazepam for *status epilepticus* have been introduced. Despite his successful clinical management, the epileptic child still faces many obstacles to social acceptance. (No refs.) - *E. L. Rowan.*

Columbia University College
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630 West 168th Street
New York, New York 10032

1817 CARSON, MERL J. Treatment of minor motor seizures with nitrazepam. *Developmental Medicine and Child Neurology,* 10(6): 772-775, 1968.

Thirty-seven patients with drug-resistant convulsive disorders were treated for periods up to 28 months with nitrazepam, a Librium analogue. Out of 6 patients with hypsarrhythmia, 5 (83%) were markedly improved. Out of 15 patients with myoclonic and/or akinetic seizures, 11 (73%) had good to excellent results. Out of 26 patients with minor motor seizures, 21 (80%) had good to excellent results. Improvement in accompanying major motor seizures was noted in 5 but unaltered in the remaining 15. In 1 patient the major seizures may have been slightly worsened. Sedation, dizziness and anorexia and incoordination were the most prominent side effects noted in 15 (40%) and necessitated discontinuing the drug in 7. Serum transaminase levels were above normal in 15 patients without other evidence suggesting hepatic damage. Nitrazepam has proved a highly effective anticonvulsant in seizures which are most resistant to available therapy. It is the drug of choice in cases with myoclonic, akinetic and other minor motor manifestations. (4 refs.) - *Journal summary.*

Children's Hospital of Orange County
Orange, California

1818 ARAI, SUSUMU. A long-term survey on the correlation between clinical courses and electroencephalographic findings in epileptics. *Psychiatria et Neurologia Japonica,* 70(1):40-51, 1968.

An investigation on 344 epileptics to determine the correlation between EEG and seizures was conducted. The Ss were examined at intervals of more than 1 year during drug treatment with antiepileptics and the results were: of Ss showing improvement of paroxysmal EEG activities, 78% had a decrease of clinical seizures; of Ss with focal abnormalities in EEG, approximately 50% had the same abnormalities when re-examined; EEG background activity improved in 50% of the Ss in which seizure frequency decreased; among EEG tracings, the spikes were most closely related to the clinical course; characteristic patterns in EEG were noted in benign cases; EEG background activities in psychomotor epilepsy were not related to the clinical course; and duration of epileptic attacks was related to the pattern of EEG. The correlation between EEG and clinical progress of epileptics tended to decrease after 5 years. (25 refs.) - *M. Drossman.*

Department of Neuropsychiatry
University of Tokyo
Tokyo, Japan

1819 REYNOLDS, E. H. Mental effects of anticonvulsants, and folic acid metabolism. *Brain,* 91(Part II):197-214, 1968.

Megaloblastic anemia and folic acid deficiency can be detected in epileptic patients treated with phenobarbitone, phenytoin or primidone. The mechanism of the deficiency is postulated as competition of the drugs with folic acid in certain enzymes where folic acid is a cofactor. Folic acid administration to patients receiving anticonvulsant drugs usually produces an increase in the frequency and severity of epileptic fits; however, anticonvulsant drugs often lead to apathy, MR, psychiatric disorders, and dementia. Permanent cerebral damage may be an outcome of anticonvulsant therapy. Some patients with anticonvulsant damage to spinal cord and peripheral nerves have been successfully treated with folic acid and vitamin B_{12}. (69 refs.) *D. S. Plaut.*

National Hospital
Queen Square
London W. C. 1, England

1820 HAGBERG, B. The Librium-analogue Mogadon in the treatment of epilepsy in children. Proceedings of the Fifteenth Northern Pediatric Congress (Bergen, Norway, June 28 to July 1, 1967), in *Acta Paediatrica Scandinavica,* Supplement 177, 61-62, 1967.

A study of the effects of Mogadon--an anticonvulsant derivative of diazepin--revealed that of 35 epileptics receiving 0.5-1.0 mg/kg body weight/day, 15 with minor seizures responded satisfactorily. Adversive effects included ataxia, elicitation of grand mal

seizures, bronchial disturbances, hypersalivation, weight gain, and an attempted suicide by a 14-year-old girl. (No refs.)
J. P. West.

Department of Pediatrics
University Hospital
Uppsala, Sweden

1821 MARJERRISON, G., JEDLICKI, S. M., KEOGH, R. P., HRYCHUK, W., & POULAKAKIS, G. M. Carbamazepine: Behavioral, anticonvulsant and EEG effects in chronically-hospitalized epileptics. *Diseases of the Nervous System*, 29(2):133-136, 1968.

Carbamazepine, as an anticonvulsant, was tested on 21 hospitalized epileptics. The Ss were given previously prescribed anticonvulsant drugs for 4 months and then carbamazepine (200 mg) or phenobarbital (100 mg) was substituted for 1/2 the total dosage. After 2 months, a crossover of the 2 drugs was made and the treatment was continued for 4 more months. Two psychiatrists independently used the Inpatient Multidimensional Psychiatric Scale and supervising ward nurses used the Psychotic Reaction Profile for rating the Ss. The Grass IIIB was used for EEG recordings. Seizure control with carbamazepine reduced oversedation, yet had enough anticonvulsant activity when used with smaller doses of other drugs. Ss displayed less retarded motor and verbal behavior as well as mood elation and improved physical behavior under carbamazepine treatment; however, an increased but unsustained frequency of major seizures and a higher EEG global abnormality were recorded. A higher *nil beta* rating incidence suggests a relation to a decrease in barbiturate dosage. Although carbamazepine dosage was 400-1,200 mg/day, normal white blood count with no toxicity (even 18-24 mos later in 6 Ss) was recorded. (6 refs.) - *L. Negulesco.*

Saskatchewan Hospital
North Battleford
Saskatchewan, Canada

1822 MILLICHAP, J. GORDON, & AYMAT, FERNANDO. Controlled evaluation of primidone and diphenylhydantoin sodium: Comparative anticonvulsant efficacy and toxicity in children. *Journal of the American Medical Association*, 204(8):738-739, 1968.

Forty children (CA 1-14 yrs) with epilepsy were treated with primidone and diphenylhydantoin for 7 to 10 months; a significant decrease in seizures was noted in both treatment groups when compared to previous seizure history. The drugs did not appear to differ in their therapeutic value in this study; animal experiments were, therefore, not confirmed. Toxic side effects were not severe with either drug; however, the incidence of side effects was greater in the diphenylhydantoin-treated group. These drugs remain the drugs of choice for treatment of grand mal epilepsy. (4 refs.) - *K. Drossman.*

707 West Fullerton Avenue
Chicago, Illinois 60614

Genetic Disorders

1823 SCHULZ, JEANETTE. Chromosome disorders in mental retardation: Whose chromosomes to count? *Pediatric Clinics of North America*, 15(4):871-889, 1968.

Chromosome analysis is suggested when: the possibility of an inherited translocation exists in a young mother; siblings or other relatives are suspected of being carriers; a first-born is affected; and a positive family history of mongolism or other genetic abnormality exists. Trisomy E_1 as well as Down's syndrome increases in frequency in offspring from older mothers and mortality rates are quite high due to multiple organ system involvement. Trisomy D_1 is quite rare and is associated with MR and a multiplicity of defects. The *Cri-du-chat* syndrome is most often associated with a short arm deletion of an early DNA replicator, the 5 chromosome. Microcephaly and MR are prominent in autosomal ring chromosomes of the D and E groups. Autosomal monosomy is no longer considered incompatible with survival of the embryo. Determination of the number of Barr bodies in buccal and vaginal epithelium is the most useful tool in evaluating sex chromosomal abnormalities. Klinefelter's syndrome and its many sex chromosome complement variations can be discovered early in life by the buccal smear. Excess of X-chromosomes in females may also be associated with MR. (155 refs.)
L. E. Clark.

1640 West Roosevelt Road
Chicago, Illinois 60608

1824 WRIGHT STANLEY W., & SPARKES, ROBERT S. Genetic counseling in mental retardation. *Pediatric Clinics of North America*, 15(4):905-924, 1968.

In genetic counseling of the parents of MRs, the physician should be familiar with basic genetics, obtain accurate family and pregnancy histories, and be familiar with the recent literature. Genetic counseling is fairly straightforward when simple Mendelian inheritance is involved; difficulties encountered are due to an inability to identify phenotypically normal carriers, to delayed manifestations of the disease clinically, to appearance of somatic cell mutations, and when paternity and illegitimacy questions are raised. New mutations must be considered in risk estimates. If the maternal carrier state can be identified, then accuracy of prediction is increased. Down's syndrome patients usually fall into the maternal-age dependent groups. Chromosomal analysis of parents of Ss with the autosomal deletion syndrome is essential in counseling. XXX females are normally fertile; however, XO and XXY genotypes are usually sterile. A low recurrence is observed in sporadic cases, while up to 50% is noted in familial cases. Chromosomal analysis of cells obtained from amniocentesis, meiotic studies, and improved lab techniques should be important adjuncts in genetic counseling. (24 refs.) - *L. E. Clark*

Department of Pediatrics
School of Medicine
University of California
Los Angeles, California 90024

1825 HSIA, DAVID YI-YUNG. *Human Developmental Genetics*. Chicago, Illinois, Year Book Medical Publishers, 1968, 400 p. (Price unknown)

Genetic factors affecting humans from embryo to infant and child are summarized with particular emphasis given to cytogenetics, biochemical genetics, and immunogenetics. Basic knowledge of spermatogenesis, oogenesis, embryogenesis, and ontogeny are briefly discussed in the first sections and then new developments in each field are considered. Each chapter includes comprehensive bibliographies which investigators could use for more intensive research. The last section contains information on environmental agents which are known to affect embryonic development. Practicing physicians, clinicians, and other interested research workers should find this volume useful and rewarding. (527 refs.) *K. Drossman.*

CONTENTS: General Considerations; Genetics of Prenatal Growth; Cytogenetics; Biochemical Genetics; Immunogenetics; and Iatrogenic Factors.

1826 AARSKOG, DAGFINN. A large deletion of chromosome No. 1 (46,XY,1?--). *Journal of Medical Genetics*, 5(4):322-325, 1968.

A boy with multiple minor malformations is described. The clinical course was characterized by developmental retardation, severe hypotonia, recurrent infections, and failure to thrive. The child died at the age of 5 months. Morphological and autoradiographical chromosomal analysis revealed a large deletion of chromosome No. 1 involving the arm containing an early-labeling terminal portion. The gene loci of Gm, Hp, Rh, and most likely Pi and Gc, can be excluded from the deleted part of the chromosome. (12 refs.) *Journal summary.*

University of Bergen
School of Medicine
Bergen, Norway

1827 GUSTAVSON, K. -H., HAGBERG, B., & SANTESSON, B. Mosaic trisomy of an autosome in the 6-12 group in a patient with multiple congenital anomalies. *Acta Paediatrica Scandinavica*, 56(6):681-686, 1967.

An infant boy with hyperexcitability, feeding difficulties, peculiar facies, MR, genital abnormalities, muscle hypertonia, agenesis of the corpus callosum, peculiar cry, and thick, folded palmar skin was determined to have mosaic trisomy of an autosome in the 6-12 group. Of 6 patients with autosomal trisomy in the 6-12 group reported in the literature, 4 were MR and 4 had genital abnormalities. The S in this study had some clinical signs in common with all of the previous 6 Ss; however, he also possessed some unique characteristics. It appears that the severity of the disorders associated with this karyotype may depend upon the total number of cells which have the autosomal trisomy chromosome complement. (22 refs.) - *K. Drossman.*

University of Uppsala
Uppsala, Sweden

1828 JONGBLOET, P. H., & VAN KEMPEN, C. Dermatoglyphics in partial C trisomies. *Lancet*, 1(7557):1428, 1968. (Letter)

Dermatoglyphic studies on a 7-year-old girl with oligophreny and somatic aspects of the osteodystrophy of Albright, type II found 20 arches on the fingers and toes. The distal phalanges of the fingers and toes were very small and the nails were very short. The patient had had many convulsions as an infant. Karyotype was a normal 46,XX with a clearly marked satellite on 1 of the G chromosomes. The mother and 4 uncles were also oligophrenic and epileptic and the mother had 9 loops and 1 whorl while the father had 8 loops, 1 whorl, and 1 arch. (2 refs.) - *J. Snodgrass.*

Maria Roepaan Institute
for Mental Defectives
Ottersum, The Netherlands

1829 BORGAONKAR, D. S. Dermatoglypics in partial C trisomies. *Lancet*, 1(7557): 1428, 1968. (Letter)

Dermatoglyphic patterns in 5 individuals demonstrated that 2 had 7 arches and normal 46,XY chromosomes and 1 had 6 arches. These 3 were clinically normal and confined to a penal institution. One patient with G_1 trisomy Down's syndrome had 6 arches and a normal individual in the control group had 6 arches. (No refs.) - *J. Snodgrass.*

Johns Hopkins University
School of Medicine
Baltimore, Maryland 21205

1830 MAGENIS, R. ELLEN, *HECHT, FREDERICK, & MILHAM, SAMUEL JR. Trisomy 13 (D_1) syndrome: Studies on parental age, sex ratio, and survival. *Journal of Pediatrics*, 73(2): 222-228, 1968.

Trisomy 13(D_1) syndrome is associated with MR, arhinencephaly, microphthalmia, cleft lip, and numerous other congenital defects. Of 178 patients with trisomy 13, 1/2 lived to 1 month, 1/3 to 3 months, and 1/20 to 3 years of age. Longer survival was seen in 30 Ss with translocations and 13 Ss with mosaicism. There was a slight excess of girls born with trisomy 13, and this ratio remained constant among survivors at later ages. The distribution of maternal ages at the time of birth of 172 Ss was bimodal, with the first peak at 25 years and the second at 38 years; a similar age pattern was seen in fathers. The first maternal age peak, but not the second, in trisomy 13 infants was associated with chromosomal translocations. This suggests that translocations are independent of maternal age. The trisomy 13 in the 38-year-old maternal group probably was caused by maternal nondisjunction. (14 refs.) - *K. Drosseman.*

*Crippled Children's Division
University of Oregon Medical School
Portland, Oregon 97201

1831 BACCICHETTI, CARLO, D'ELIA, RUGGIERO, & TENCONI, ROMANO. 47/48 mosaicism in newborn with trisomy D. *Lancet*, 2(7583): 1397, 1968. (Letter)

A newborn male with trisomy D characteristics of hare-lip, cleft palate, slanted eyes, low-set malformed ears, broad depressed nasal bridge, bilateral polydactyly, hypoplastic genitals, and rocker-bottom feet, had 88 of 100 metaphases with 47 chromosomes with trisomy D and 12 which had 48 chromosomes with an additional small metacentric chromosome of F-group size. The father, with the same proportion of metaphases with the additional F-group chromosome, was clinically normal. (4 refs.) - *E. F. MacGregor.*

Paediatric Clinic
University of Padua
Padua, Italy

1832 ISHMAEL, J., & LAURENCE, K. M. An extra small metacentric chromosome in a mentally retarded boy. *Journal of Medical Genetics*, 5(4):335-340, 1968.

A boy with moderate microcephaly, MR, moderate spasticity, a small triangular mouth with a high-arched palate, neck webbing, an asthenic physique, and undescended testes, is described. Dermatoglyphs were normal. An extra small metacentric chromosome, which was interpreted as a presumptive deleted extra 17-18 (E) chromosome or an iso-chromosome of the short arms of chromosome 17 or 18, was found in the index patient but not in his parents or other relatives studied. The findings in the index case are compared with those in other cases with an extra small metacentric chromosome and those in 17-18 (E) trisomy. (56 refs.) - *Journal summary.*

Welsh National School of Medicine
Llandough Hospital
Penarth, Glamorgan
Wales, England

1833 SCHULZ, JEANETTE, & KRMPOTIC EVA. Monosomy G mosaicism in two unrelated children. *Journal of Mental Deficiency Research*, 12(4):255-268, 1968.

Two children with MR, microcephaly, hypertelorism, feeding difficulties, repeated respiratory diseases, dermatoglyphic abnormalities, and convulsions were found by blood and leukocyte culture studies to be monosomic mosaics for a G autosome. One child was determined to be 45,XX,G-/46,XX with many characteristics of previously described cases of G chromosome deletions such as low birth-weight, hypertonia, gross physical and mental retardation; the second case, a 45,XY, G-/46,XY mosaic more closely resembled children with Down's syndrome. Parental karyotypes were normal in both cases and other physical and biochemical findings were normal. Until differentiation of individual pairs of small acrocentric chromosomes becomes possible, it will not be feasible to identify which individual chromosome is missing; therefore, the term monosomy G seems to be the most suitable term for this chromosomal abnormality. These 2 cases show that autosomal monosomy is not necessarily incompatible with cell survival. (26 refs.) - *K. Drosman.*

Illinois State Pediatric Institute
Chicago, Illinois 60608

1834 GREENE, ELIAS L., SHENKER, I. RONALD, & KARELITZ, SAMUEL. Serum protein fractions in patients with Down's syndrome (mongolism): The influence of age. *American Journal of Diseases of Children*, 115(5):599-602, 1968.

Blood serum from 88 mongoloids (CA 2 wks to 55 yrs) was found to have a significant increase in γ-globulin and a decrease in albumin, when compared to normal Ss. Standard immunodiffusion methods were used to determine which component of the immunoglobulin system was responsible for the increased γ-globulin. It was found that the IgG fraction increased significantly with age in mongoloids, the IgA fraction was also increased, while the IgM remained within the normal range. Since the IgG fraction contains the most common antibodies, it is theorized that this fraction's increase in mongoloids may be a physiological attempt to compensate for "poor quality" antibody formation or for genetic abnormalities of genes on chromosome 21. The significance of albumin decrease and IgM increase in these Ss remains obscure. (13 refs.) - *K. Drosman.*

*Long Island Jewish Hospital
New Hyde Park, New York 11043

1835 BERG, J. M. Observations on thenar/first interdigital dermatoglyphic patterns in mongolism. *Journal of Mental Deficiency Research*, 12(4):307-311, 1968.

The study of palm prints of 300 confirmed trisomy G mongoloids and 300 normal controls revealed that intensity, frequency, and size of the patterns in the thenar/first interdigital dermatoglyphic regions were reduced in the mongoloids. There was a total of 14 thenar/first interdigital patterns in the 300 mongoloids, and 46 in controls. No significant differences occurred between sexes, but triradii occurred more frequently on left hands than on right hands. A total of 35 controls had thenar/first interdigital patterns, while only 13 mongoloids had these patterns. The mean ridge count of the thenar/first interdigital loops was 4.5 for mongoloids and 10.9 for controls. The incidence of thenar/first interdigital patterns is characteristic in several other syndromes. (10 refs.) - *M. T. Lender.*

Kennedy-Galton Centre
Harperbury Hospital near
St. Albans
Hertfordshire, England

1836 BUGARIN, OBRAD. Cytogenetic analysis in the Langdon-Down syndrome. *Romanian Medical Review*, 11(3):45-51, 1967.

A clinical analysis of 8 children with Down's syndrome showed that current chromosomal probabilities in Down's syndrome include trisomy 21 with 47 chromosomes, translocation 13/21, 21/22 with 46 chromosomes, mosaicism with both 46 and 47 chromosomes, and mongolism with 48 chromosomes. While studies have implicated many possible factors in the syndrome, the most frequently associated factor in trisomy is advanced maternal age. One particular child with suspected trisomy was found on cytological analysis to have cells with 45, 46, 47, and 48 chromosomes. The largest number of cells (60%) had 47 chromosomes followed by cells with 46 chromosomes (27%). The S's mother was MR and 25% of her cells had 47 chromosomes, which would indicate that she also was an autosomal mosaic. Finally, the possible relationship between toxoplasmosis and Down's syndrome suggested by other investigators was also supported in the current study. (4 refs.) - *E. Gaer.*

Clinic of Paediatrics
The Hospital for Children
Timisoara, Rumania

1837 ZELLWEGER, H. Is Down's syndrome a modern disease? *Lancet*, 2(7565):458, 1968. (Letter)

Two mother-and-child paintings (separated by a 20-yr interval) done between 1618 and 1640 depicted the same mother but 2 different infants, each with features of mongolism. This is suggested to be the first recorded instance of familial mongolism. However, another painting of a mongoloid-appearing child in 1773 disputes the accuracy of diagnosing by painting because its S was later proved to be definitely non-mongoloid. (3 refs.) *J. P. West.*

Department of Pediatrics
University Hospitals
Iowa City, Iowa

1838 RICHARDS, B. W. Is Down's syndrome a modern disease? *Lancet*, 2(7563):353-354, 1968. (Letter)

The difference in the prevalence of mongoloids now and in the sixteenth and seventeenth centuries probably can be accounted for by the relative smallness of earlier populations, the higher rate of infant mortality then, and the life expectancy for females, which was generally less than the age when the risk of mongolism is highest in modern times. (5 refs.) - *E. F. MacGregor.*

St. Lawrence's Hospital
Caterham, Surrey CR 3 5YA
England

1839 PENROSE, L. S. & BERG, J. M. Mongolism and duration of marriage. *Nature*, 218(5138):300, 1968. (Letter)

A comparison of maternal age and duration of marriage at the birth of 988 mongoloids (760 at home; 228 in hospitals) and 1,146 non-mongoloid MR controls (680 at home; 466 in hospitals) showed a mean difference of 3.72 years or 15 times the standard error of difference. However, the difference in mean marriage duration is not statistically significant between mongoloid and control births in each separate maternal age group, which tends to disprove the hypothesis that marriage duration is a factor in delayed fertilization as related to mongolism. (1 ref.) *E. F. MacGregor.*

Kennedy-Galton Centre
Harperbury Hospital near
St. Albans
Hertfordshire, England

1840 Does sex figure in mongolism? *Medical World News*, 9(11):69, 1968.

The theory is advanced that, since the human egg degenerates after a day or so and fertilization of this deteriorating egg could result in "errors in chromosome separation," infrequent or sporadic coitus could result in mongolism. No studies correlating age, duration of marriage and coital frequency were made but a review of case records of 201 mothers of mongoloid children showed that 1/2 were over 35 at the time of birth with duration of marriage being 13 years. The Kinsey survey supports the view that coital frequency of women decreases with age. (No refs.) - *E. F. MacGregor.*

1841 WOLF, WILLIAM C. Caries incidence in Down's syndrome (mongolism). *Journal of the Wisconsin State Dental Society*, 43(1):3-7, 1967.

The hypothesis that mongoloids have a low incidence of dental caries was validated in a study of 200 institutionalized MRs (100 mongoloids and 100 age, sex, and intelligence matched controls). Of the total mongoloid group, 42% were found to be caries-free as were 17% of the non-mongoloid controls. The expected frequency in the general population is 6-7%. Comparison by age groups corresponding to stages of deciduous, mixed, and permanent dentition showed mongoloids to have fewer decay-filled teeth and surfaces at every stage. When caries did occur, the frequency in occlusal areas was relatively high and that in proximal areas relatively low. Delayed eruption and abnormal morphology may be protective to mongoloid deciduous teeth, but permanent dentition is subject to a higher frequency of caries because of poor hygiene and frequent peridontal disease. Physiologic, metabolic, and genetic factors must play a part in resistance to caries, but they are as yet unspecified. (17 refs.) *E. L. Rowan.*

No address

1842 POCHEDLY, CARL, & ENTE, GERALD. Disseminated intravascular coagulation in a newborn with Down's syndrome. *Journal of Pediatrics*, 73(2):298, 1968. (Letter)

A mongoloid infant responded favorably to phlebotomies performed over a 4-week period

to correct intravascular coagulation. This condition has not previously been associated with Down's syndrome. (No refs.)
J. P. West.

Hematology and Neonatology
Department of Pediatrics
Meadowbrook Hospital
East Meadow, New York

1843 Learning to care for a mongoloid child. *Medical World News*, 9(18):26-27, 1968.

For parents of a mongoloid child, the advice and support of the pediatrician is an important factor in helping them to adjust and give the proper care and training which the child needs. There is, as yet, very inadequate educational and physical therapy facilities for such children, so parents must improvise with whatever help they can get. (No refs.) - *E. F. MacGregor.*

1844 NIELSEN, JOHANNES, & THOMSEN, NIELS. A psychiatric-cytogenetic study of a female patient with 45/46/47 chromosomes and sex chromosomes XO/XX/XXX. *Acta Psychiatrica Scandinavica*, 44(2):141-155, 1968.

A 67-year-old widow was subjected to chromosomal investigation because of early menopause, total baldness, obesity, and psychiatric disorders, and a karyotypic examination showed that 76% of metaphases had sex chromosomes XX, 15% XO, and 9% XXX. Physical traits consistent with partial XO (Turner's syndrome) were short stature, baldness, lymphedema, and an incurved fifth finger. She had menstruated until age 34 and given birth to a child who died in infancy of a "bowel disorder." Intelligence was apparently normal. Recurrent endogenous depression was probably incidental to chromosomal mosaicism but an immature personality with traits of character disorder was similar to that described in patients with Turner's syndrome as well as triple X. Further studies of such patients may add to knowledge of specific chromosomal influence on personality, intelligence, and mental disorder. (46 refs.) - *E. L. Rowan.*

Cytogenetic Laboratory
Aarhus State Hospital
Risskov
Denmark

1845 THORBURN, MARIGOLD J., MILLER, COLIN G., & DOVEY, PETER. Anomalies of development in a girl with unusual sex chromosomal mosaicism. *Journal of Medical Genetics*, 4(4):283-287, 1967.

A 10-year-old hirsute girl with skeletal abnormalities and temporal lobe epilepsy was found to have both a 45 XO cell line with a missing C chromosome and a 46 chromosome cell line with a large submetacentric chromosome, probably an X, replacing the C. The S was of short stature and masculine build, with a low posterior hair line. Pubic hair growth was marked, and she had long fingers and congenital skeletal anomalies of the feet and knees. Radiological examination revealed dilated, clubbed calyces of the right kidney. The remainder of her physical examination and laboratory studies was normal as was her intelligence. The clinical findings of stunted growth and renal and skeletal abnormalities are most compatible with Turner's syndrome although gonadal dysgenesis has not yet been confirmed. Furthermore, virilization due to the presence of Y chromosome material may also be possible but has not yet been found. The origin of the abnormal X chromosome is not totally understood. An isochromosome of the long arm with an extra translocated segment or a normal X chromosome with extra material is a possibility. (14 refs.) - *E. Gaer.*

Departments of Pathology
and Paediatrics
University of the West Indies
Jamaica, West Indies

1846 LAM-PO-TANG, P. R. L. C., NURCOMBE, B., & STEINBECK, A. W. A new sex-chromosome mosaicism. *Lancet*, 2(7571):781, 1968. (Letter)

A preliminary case history of an 18-year-old MR male (IQ 70) with sex-chromosome mosaicism of the type 48,XXYY/47,XYY, whose clinical features were more similar to those associated with Marfan's than Klinefelter's syndrome, is presented. Analysis of 50 metaphases revealed 48 XXYY chromosomes in 36 cells; 47 XYY chromosomes in 13 cells; and in 1 cell, 46 chromosomes with 1 extra in groups G and C and 2 absent in group A. Results of follow-up study will be presented later. (14 refs.)
J. P. West.

University of New South Wales
Prince of Wales Hospital
Randwick, N. S. W., Australia

1847 FERRIER, PIERRE E., & KELLEY, VINCENT C. Influence of the Y chromosome on gonadal differentiation: Asymmetrical gonads in an XO/XY mosaic. *Journal of Medical Genetics*, 4(4):288-294, 1967.

A 5-month-old infant with ambiguous genitalia was found to have 45,XO/46,XY chromosome mosaicism on karyotyping. The S had posterior labial fusion, hypertrophied phallus with chordee, and a urogenital sinus at the base. On laparotomy fimbriated fallopian tubes, gonads in the ovarian sites, female urethra, bicornuate uterus, and a small vagina were found. Microscopically the left gonad was found to be a primordial testes with immature seminiferous tubules lined by Sertoli cells and primary spermatogonia with no evidence of differentiated Leydig cells. The right gonad was similar but 1 end was composed of ovarian stroma without identifiable primary oogonia. Karyotyping revealed a mosaic pattern with a predominance of the 45,XO cell line. Past studies would indicate that normal cell lines, either XX or XY, are necessary for the normal differentiation of gonadal tissue; therefore, gonads of an XO/XY mosaic would undergo as much testicular differentiation as the number of XY cells allow, while those parts of the gonad containing XO cells will remain undifferentiated. The current case could best be referred to as a male pseudohermaphrodite with "asymmetrical testicular differentiation," while those reported cases of true hermaphroditism with an XX genotype can be explained on the basis of a Y chromosome which was not located, the action of an autosome, or some environmental factor. (26 refs.) - *E. Gaer.*

Department of Pediatrics
University of Washington
Seattle, Washington 98105

1848 McCONNELL, THOMAS S., LADNER, CALVIN N., & PFOERTNER, MARIA. XO/XX/XY mosaicism in a female with Turner's syndrome. *Obstetrics and Gynecology*, 31(1):53-60, 1968.

A phenotypic female (CA 16 yrs) with short stature, slight neck webbing, shield-shaped chest, and absence of axillary and pubic hair, was shown by chromosome studies to be an XO/XX/XY mosaic. A laparotomy revealed small uterus and tubes and small undifferentiated gonads. Xg^a positive blood types were found in the S, her mother, and her father. The mechanism of the formation of this type of mosaic is discussed and problems in diagnosis are reviewed. This is the first case of XO/XX/XY mosaicism in a female with Turner syndrome's clinical signs. (30 refs.) *K. Drossman.*

University of New Mexico
School of Medicine
Albuquerque, New Mexico

1849 NOONAN, JACQUELINE A. Hypertelorism with Turner phenotype: A new syndrome with associated congenital heart disease. *American Journal of Diseases of Children*, 116(4):373-380, 1968.

Nineteen unrelated patients (12 males; 7 females) with short stature and remarkably similar facies including hypertelorism, short neck, micrognathia, antimongoloid slant and ptosis of the eyes, curly hair, and low-set ears associated with congenital heart disorders are described. Nine of the Ss are MR; however, MR does not appear to be invariable with the syndrome. This disorder has been classified as Turner's syndrome or "male Turner's syndrome" in the past, but it is different clinically and etiologically from true Turner's syndrome and should be considered a new syndrome. Congenital heart disease was present in all patients and included valvular pulmonary stenosis, isolated patent ductus arteriosus; atrial septal defects; and other anomalies of the heart-lung blood vessels. Karyotype and chromatin studies were normal, the histories of pregnancy and birth were normal, and birth-weights except in 1 case were within normal limits. Familial histories were not completed in detail and further investigation in this area is needed; however, 1 or more of the characteristic malformations found in 1 or both parents in 4 cases and suggests that this is an inherited disorder with multifactorial genes and variable penetrance. (22 refs.) *K. Drossman.*

Department of Pediatrics
University of Kentucky
Medical Center
Lexington, Kentucky 40506

1850 CELERMAJER, JOHN M., *BOWDLER, J. DENBY, & COHEN, DOUGLAS H. Pulmonary stenosis in patients with the Turner phenotype in the male. *American Journal of Diseases of Children*, 116(4):351-358, 1968.

Of 95 boys with pulmonary stenosis without ventricular septal defects, 8 showed somatic abnormalities associated with Turner's syndrome. Seven of the 8 children had normal

motor and mental development, while the intelligence of the eighth S could not be evaluated because of a language barrier. Chromosome karyotype was determined by lymphocyte culture in 5 Ss; it was normal in 4 Ss, while the other S showed an extra Y chromosome (XYY) or a partially deleted acrocentric chromosome of the D or E group. Leukocyte chromatin sexing was done in 2 patients and was negative (male type). It is suggested that an association between pulmonary stenosis and the Turner phenotype in males may not be uncommon. (8 refs.) *K. Drossman.*

*Department of Radiology
Royal Alexandra Hospital for Children
Camperdown, Sydney, Australia

1851 GOMEZ-ACEBO, JOSE, PARRILLA, ROBERTO, ABRISQUETA, JOSE ANTONIO, & POZUELO, VINCENTE. Fine structure of spermatogenesis in Klinefelter's syndrome. *Journal of Clinical Endocrinology and Metabolism,* 28(9): 1287-1294, 1968.

The case of a patient with clinical evidence of Klinefelter's syndrome, positive sex chromatin and a karyotype of 47/XXY is presented. Testicular biopsy showed a histological picture characteristic of Klinefelter's syndrome and areas of spermatogenesis were encountered in some tubules. The fine structure of the testes in the case was studied by electron microscopy and the findings are reported and discussed. (21 refs.) *Journal abstract.*

Instituto "G. Maranon"
Centro del Investigaciones Biologicas
Velazques 144
Madrid 6, Spain

1852 YOUSSEF, A., & BARKHAN, P. XYY constitution in prepubertal child. *British Medical Journal,* 1(5594):748-749, 1968.

A boy first referred to a child psychiatrist at 4 1/2 years of age because of unmanageable behavior at home was found to possess an XYY karyotype. The boy was tall, handsome, well proportioned, and his IQ was normal; however, an EEG at age 5 years demonstrated "suspicious spike-like waveforms." The excessive height noted in previous studies on the XYY syndrome was also noted in this patient and confirms the view that excessive tallness occurs even before puberty in this chromosomal aberration. This is believed to be the first reported case of the XYY karyotype in a prepubertal boy with normal intelligence. (7 refs.) - *K. Drossman.*

Guy's Hospital
London S. E. 1, England

1853 RUDD, B. T., GALAL, O. M., & CASEY, M. D. Testosterone excretion rates in normal males and males with an XYY complement. *Journal of Medical Genetics,* 5(4):286-288, 1968.

Urinary testosterone excretion rates have been measured in 15 patients detained at the special hospital, Rampton. Of these patients, 9 had an XYY chromosomal complement and the remaining 6 had a normal male sex chromosome pattern. Almost all these patients had higher excretion rates of testosterone when compared to normal healthy men. It has been postulated that patients under detention have increased testoterone excretion rates due to changes in the mechanisms controlling the diurnal rhythm of testosterone. The results do not suggest that an additional "Y" chromosome has an influence on the excretion of the male sex hormone. (12 refs.) - *Journal summary.*

Institute of Child Health
University of Birmingham
Birmingham, England

1854 MATTHEWS, M. B., & BROOKS, P. W. Aggression and the YY syndrome. *Lancet,* 2(7563):355-356, 1968. (Letter)

A 23-year-old, 6-foot 2-inch male, with a history of aggressiveness from age 12, was reported as a 46,XY/47,XYY mosaic on the basis of the analysis of 50 peripheral blood leucocytes. Prior to his admission to the hospital he had had sharp, left-sided chest pains after which he became extremely violent. There appeared to be no serious psychiatric illness and a diagnosis was made of an immature, aggressive, dependent personality disorder. (2 refs.) - *E. F. MacGregor.*

Western General Hospital
Edinburgh 4, Scotland

1855 FORSSMAN, HANS, AKESSON, HANS OLOF, & WALLIN, LEIF. The YY syndrome. *Lancet*, 2(7571):779, 1968. (Letter)

An intellectually normal (IQ, 116--Stanford-Binet) 16-year-old male whose height of 6 feet 10 inches prompted examination was determined to have an extra Y chromosome; however, the S was not characteristically antisocial. Therefore, mental peculiarities associated with the YY syndrome should not be regarded as invariable. (1 ref.)
J. P. West.

Psychiatric Research Centre
St. Jorgen Hospital
Sweden

1856 JANCAR, J. XXYY with manic-depression. *Lancet*, 2(7575):970, 1968. (Letter)

A 55-year-old male with XXYY syndrome showed a manic-depressive psychosis which responded to haloperidol treatment. He had an IQ of 62, fronto-occipital alopecia, slight exophthalmos, left divergent strabismus, myopic chorioretinal degeneration, prominent lower jaw, hypogonadism, small dermatoglyphic patterns, and excessive unreactive rhythmical theta activity in the EEG. Of 50 cells examined, 54% showed a single sex-chromatin on the nuclear membrane and 19 of 20 cells had 48 chromosomes; 1 had 47 chromosomes. (1 ref.)
E. F. MacGregor.

Stoke Park Hospital
Bristol BS16 1QU
England

1857 SHANNON, MICHAEL W., & *NADLER, HENRY L. X-linked hydrocephalus. *Journal of Medical Genetics*, 5(4):326-328, 1968.

A family with X-linked inherited hydrocephalus in which 4 males in 2 generations were affected is presented. The propositus was born with an enlarged head and congenital megacolon after an uncomplicated pregnancy. A previous child had died at 17 months of age with trisomy 18. A male maternal cousin and 2 maternal uncles of the propositus were also known to be hydrocephalic. Studies on sex-linked hydrocephalus estimate the incidence to be about 2%. Where the mother is known to be a carrier, it can be expected that 50% of her sons will be hydrocephalic and none of her daughters, although 50% of the daughters can be expected to be carriers also. Since it is not possible to determine heterozygousity in this disorder, care should be exercized in genetic counseling of affected families. (25 refs.) - *M. Drossman.*

*Children's Memorial Hospital
2300 Children's Plaza
Chicago, Illinois 60614

1858 ATKINS, LEONARD, BARTSOCAS, CHRISTOS S., & PORTER, PHILIP J. Diverse chromosomal anomalies in a family. *Journal of Medical Genetics*, 5(4):314-318, 1968.

A family is described in which the propositus, a trisomy-21 mongoloid boy with a D/D translocation, inherited the D/D translocation from his phenotypically normal father. A sib was found to have an XXXXY sex chromosome constitution. It is possible, though the evidence is inconclusive at present, that there is a relation between the presence of a translocation and the occurrence of nondisjunction. (15 refs.) - *Journal summary.*

Department of Pathology and
Pediatrics
Harvard Medical School
Cambridge, Massachusetts

1859 MUKHERJEE, A. B., *PARTINGTON, M. W., SIMPSON, NANCY E., & WALMSLEY, KATHLEEN A. Multiple anomalies associated with a small extra metacentric autosome. *Journal of Medical Genetics*, 5(4):329-334, 1968.

An 8-year-old boy with several congenital anomalies, including severe MR, has been described. Chromosomal analysis showed a modal number of 47, the extra chromosome being small and metacentric with no visible satellites. Lack of a late-labeled chromosome and absence of sex chromatin suggest that the origin of the extra chromosome is not from an X chromosome. Karyotypes and autoradiographs of parents and a brother were normal. Unusual dermatoglyphic patterns were noted. (20 refs.) - *Journal summary.*

*Department of Pediatrics
Queen's University
Kingston, Ontario, Canada

1860 SMITHELLS, R. W. Cerebro-hepato-renal syndrome. *Developmental Medicine and Child Neurology*, 10(2):236, 1968. (Annotation)

A new genetic syndrome, the cerebro-hepato-renal syndrome, is described. Clinical symptoms are: peculiar facies including high forehead, hypertelorism, and abnormalities of the ears and eyes; cerebral anomalies; hepatomegaly, cirrhosis, and gastrointestinal bleeding; albuminuria and cysts in kidney cortices; cardiac anomalies; and hypotonia. Nine children in 3 sibships have been described with an autosomal recessive inheritance as the probable genetic basis. (4 refs.) *M. Drossman.*

Alder Hey Children's Hospital
West Derby
Liverpool 12, England

1861 HANSEN, AXEL C. Norrie's disease. *American Journal of Ophthalmology*, 66(2):328-332, 1968.

Norrie's disease (hereditary bilateral pseudotumor of the retina), a sex-linked syndrome which includes blindness in all affected individuals, MR in 2/3, and defective hearing in 1/4 to 1/3 is reported in 2 Negro infants (from a family of 5 generations in which 9 males were blind). The first of the 2 infants was MR; both infants when examined at CA 33 months and 17 months, respectively, had eyes which were phthisical, with corneal opacities and cataracts. As indicated above, the gene penetrance is complete, but the expressivity varies. A detailed family history revealing blind males may spare the patient an unnecessary enucleation when neoplasm is considered in the differential diagnosis. The metabolic defect involved is not known and there is no effective treatment; therefore, in affected families preventive eugenics is recommended. (10 refs.) - *R. D. Nunn.*

1005 18th Avenue North
Nashville, Tennessee 37208

1862 COMINGS, DAVID E., PAPAZIAN, CLEMENT, & SCHOENE, HERMAN R. Conradi's disease: Chondrodystrophia calcificans congenita, congenital stippled epiphyses. *Journal of Pediatrics*, 72(1):63-69, 1968.

Conradi's disease may be recognized in later life by characteristic abnormalities of the skeleton, eyes, and skin. Clinical symptoms in a girl (CA 15 yrs) followed longitudinally were: evanescent epiphyseal stippling, which cleared by age 3 years; vertebral abnormalities; a short right femur; bilateral congenital cataracts; saddle nose; irregular dentition; kyphoscoliosis; follicular atrophoderma; cicatricial alopecia; and low normal intelligence (IQ 90-95). Optic atrophy and MR indicate CNS involvement by the disease. The disease can be diagnosed by these extra-epiphyseal characteristics. The epiphyseal stippling usually used in diagnosis may disappear from the first to the third years. The disease appears to be autosomal recessive. (25 refs.) - *L. E. Clark.*

Department of Medical Genetics
City of Hope Medical Center
Duarte, California

1863 GERMAN, JAMES, WALKER, MARY E., STIEFEL, FREDERICK H., & ALLEN, FRED H., JR. MN blood-group locus: Data concerning the possible chromosomal location. *Science*, 162(3857):1014-1015, 1968.

Studies on a 30-month-old MR child and his family indicate that the locus of the MN blood group is on the long arm of the number 2 or the long arm of the number 4 chromosome. The child had a small unusually shaped head, unusual dermatoglyphs, and other anomalies. Chromosome autoradiography revealed that the distal tip of the long arm of a number 4 chromosome carried a translocated distal segment of the long arm of a number 2 chromosome. The propositus is type MS and his father is type Ns. Dosage tests indicated that the propositus has only 1 M gene and that the father is a homozygote. It would appear that a paternal N gene has been lost or somehow inactivated during the translocation. (3 refs.) - *M. T. Lender.*

New York Blood Center
New York, New York 10021

1864 BONNER, JAMES, DAHMUS, MICHAEL E., FAMBROUGH, DOUGLAS, HUANG, RU-CHIH C., MARUSHIGE, KEIJI, & TUAN, DOROTHY Y. H. The biology of isolated chromatin: Chromosomes, biologically active in the test tube, provide a powerful tool for the study of gene action. *Science*, 159(3810):47-56, 1968.

Recent advances in cytology, biochemistry, biophysics and other fields have made it possible to study isolated chromatin and its function in DNA synthesis and RNA replication which are vital elements in all mitosis.

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Chromatin is able to catalyze the synthesis of RNA from the 4 riboside triphosphates due to the presence of RNA polymerase. Furthermore, in intact cells chromatin can serve as a template for RNA synthesis if exogenous RNA polymerase is added. Since chromatin DNA template activity is less than that of deproteinized DNA, studies undertaken to explain this have shown that histones which are integral components of chromatin are the limiting elements. Histones consist of 6 fractions, 2 rich in lysine, 2 moderately rich in lysine, and 2 rich in arginine. They appear to be similar in different tissues and organisms; furthermore, selective removal of histones from chromatin enables different amounts of RNA to hybridize with nuclear DNA. Chromosomal RNA has been found to differ from cytoplasmic RNA in its function and it is different in different species. Finally, studies have shown that certain molecules can release genes previously repressed; the interaction of chromatin, hormones, and protein may be the means to understand this. (62 refs.) - *E. Gaer.*

Division of Biology
California Institute of Technology
Pasadena, California

1865 CASEY, M. D., STREET, D. R. K., SEGALL, L. J., & BLANK, C. E. Patients with sex chromatin abnormality in two state hospitals. *Annals of Human Genetics,* 32(1):53-63, 1968.

Sex chromatin abnormalities were found in 2.2% of males and 0.5% of females in 2 state hospitals for subnormal patients who require special security because of persistent violence and/or aggression. The 21 sex chromatin positive males included 12 XXY, 5 XXYY, 2 XXYY/XYY mosaics, and 2 XXY/XY mosaics, while 2 females were XXX/XX mosaics. All XXY and XXYY males had clinical features of Klinefelter's syndrome. The sex chromatin positive males were indistinguishable from the rest of the hospital population with regard to nature of offenses (tendency to absconding and homosexuality), source of admission, diagnosis, intelligence (mean IQ 71), consanguinity of parents, parental age (XYY had older fathers), and birth order (XXYY were elder). The frequency of sex chromatin abnormalities among these patients was significantly higher than that found among newborn males (0.19%) or in other institutions for the subnormal; however, positive sex chromatin is more common among high-grade subnormals, and an unusually large number of XXYY individuals were found in this study. (38 refs.) - *E. L. Rowan.*

Centre for Human Genetics
The University of Sheffield
Sheffield, England

1866 TABUCHI, AKIRA, KADOTANI, TETSUJI, OHAMA, KOSO, & NAKAYAMA, TOSHIHIKO. Chromosome studies in primary sterility. *Lancet,* 2(7576):1040-1041, 1968. (Letter)

A study on causes of primary sterility and abortion suggests that chromosomal anomalies are an important factor. Abnormalities occurred in 22 of 385 cases of repeated abortion and in 6 of 80 cases with no pregnancy over 3 years after marriage. Anomalies included asymmetrical number 1 chromosome, asymmetrical number 3 chromosome, and 47XXY. (No refs.) - *E. F. MacGregor.*

Department of Obstetrics and Gynaecology
University School of Medicine
Hiroshima, Japan

1867 HENDERSON, S. A., & EDWARDS, R. G. Chiasma frequency and maternal age in mammals. *Nature,* 218(5136):22-28, 1968.

An experimental study with mice demonstrated that in aging oocytes there is a decrease in the frequency of chiasmata and a movement of such chiasmata to the terminal segments of the chromosomes; an increasing number of univalent chromosomes was also noted with age. Limited studies of human eggs show that human oocytes appear to be similar to mice oocytes in age effects. It is postulated that a gradient occurs in the fetal ovary during egg formation which leads to differences in chiasma frequency along a "production line" and eggs which are formed first are released first in later life. The increase in univalent chromosomes and the decrease in chiasmata in aging oocytes could be a factor in such disorders as Down's syndrome, increased congenital malformations in older mothers, and infertility which increases in older women. (35 refs.) - *K. Drosman.*

Department of Genetics
University of Cambridge
Cambridge, England

1868 Inbreeding and adoption. *British Medical Journal*, 2(5600):257-258, 1968. (Editorial)

In first cousins, the possibility of 2 partners having the same recessive gene is 1:16; however, in father-daughter and brother-sister relationships, the risk increases to 1:4. Two studies of babies resulting from incest between first-degree relatives were conducted in America and Britain. Control Ss were used in the American investigation which involved 18 Ss. At 6 months, 3 had died; 1 has bilateral cleft lip; 2 are SMR; and 4 are mildly retarded. In the control group, all Ss survived, have IQs of 80 or above, and any abnormalities are minor. The British study which was conducted over a 4- to 6-year period included 13 Ss, but no control group. Data revealed 3 Ss had died; 1 is SMR; and 4 are mildly retarded. It is concluded that the degree of relationship should be considered in incest cases for which abortion is sought, and adoption of these children should be delayed from 6 months to 1 year. (3 refs.) - *J. P. West.*

Miscellany

1869 SWALLOW, J. N. Mental retardation and dental abnormalities. *Developmental Medicine and Child Neurology*, 10(6):795-796, 1968. (Annotation)

Studies have illustrated that dental deficiencies correlate positively with metabolic irregularities. However, despite the findings that out of 449 children tested (260 normal; 84 with Down's syndrome or phenylketonuria; and 105 randomly selected institutionalized MRs), dental abnormalities occurred considerably more often in MRs, with the highest frequency in mongoloids, a definite link between dental deficiencies and degree of intelligence has not been conclusively affirmed. (7 refs.) - *J. P. West.*

Dental School
Heath, Cardiff
Wales, England

1870 GERTENRICH, ROGER L., & LEWIS, MARIAN J. A study of automatic and hand tooth brushing as used on retarded or handicapped patients. *Journal of Dentistry for Children*, 34(3):145-164, 1967.

A 4-phase project in a large state institution for the MR involved the comparison of automatic and hand toothbrushing in mongoloid, epileptic, hydrocephalic, trainable, profoundly MR, cerebral palsied, and slow-learning children in a carefully organized and supervised program of oral care. In patients brushed by attendants as well as in patients who brushed themselves, there was a significant improvement in oral hygiene and periodontal condition during the 8 weeks of intensive study regardless of the type of brush used. There was a marked decline in all groups during a follow-up period. Attendants who used automatic toothbrushes on patients almost universally approved of them as making an unpleasant task bearable and they were able to keep up in brushing even in times of strain on the wards. With proper instruction and supervision of a conscientious program of toothbrushing, better oral hygiene results, regardless of technique; however, persistent supervision must be maintained if this improvement is to be permanent. (3 refs.) - *E. L. Rowan.*

Fairview Hospital and
Training Center
Salem, Oregon 97310

1871 *Dental Services Directory for the Mentally Retarded.* (Available free from Tri-State Planning and Implementation Project for Mental Retardation, Cincinnati, Ohio, 2400 Reading Road), 1968, 18 p.

A directory of dentists willing to care for MR and handicapped patients in Kentucky (Boone, Kenton, Campbell, Gallatin, Pendleton, Grant, and Carroll counties); Indiana (Dearborn, Franklin, Ohio, Ripley, and Switzerland counties); and Ohio (Brown, Butler, Clermont, and Hamilton counties) is presented. Dentists are listed in alphabetical order and information for each dentist includes his specialty. (No refs.) - *M. Drossman.*

1872 HERMELIN, BEATE, & O'CONNOR, NEIL. Measures of the occipital alpha rhythm in normal, subnormal and autistic children. *British Journal of Psychiatry*, 114(510):603-610, 1968.

The blocking of pre-existing α-activity on EEG recordings over the occipital area is often regarded as a measure of arousal in the S. Ten autistic children matched by age with 10 normal and 10 mongoloid children (also matched by MA) with at least 35% α on resting EEG were given a sequence of 7 stimulus conditions: 2 minutes each of darkness, intermittent light, continuous light, darkness, intermittent sound, continuous sound, and darkness. All groups adapted to darkness equally well but mongoloids were initially less aroused. Light stimulation whether intermittent or continuous did not differentiate groups in degree of adaptation but autistic children adapted most quickly. No group adapted to sound but the autistic children were relatively more aroused by continuous auditory stimuli than were normals or mongoloids; this would appear paradoxical with their reported behavior. Autistic children showed briefer visual inspection before orienting away from a stimulus. (34 refs.) *E. L. Rowan.*

Medical Research Council
The Maudsley Hospital
Denmark Hill, London S. E. 5
England

1873 ROSNER, FRED, STEINBERG, FLORENCE S., & SPRIGGS, HOWARD A. Fingertip arches. *Lancet*, 2(7566):519, 1968. (Letter)

Fingertip dermatoglyphic patterns with 6 arches were found in white MR males (1.4% of 1,474), white MR females (2.7% of 1,395), white normal controls (1:91 males; 2:93 females), Negro MR males (2.3% of 838), Negro MR females (2.4% of 371), and Negro controls (7:158 males; 3:102 females). The main causes of MR were postnatal infection, trauma, birth injury, Down's syndrome, cerebral palsy, convulsive disorders, and idiopathic MR. Further investigation is being made in hematological disorders, neoplastic diseases, and endocrine abnormalities. (18 refs.) - *E. F. MacGregor.*

Maimonides Medical Center
Brooklyn, New York 11219

1874 BERNZWEIG, ELI P. Medication errors and legal implications of drug handling on the patient floor. *American Journal of Hospital Pharmacy*, 25(9):528-531, 968. (Editorial)

The increasing professional and decreasing business nature of the pharmacist's responsibilities in hospitals will tend to make him increasingly subject to malpractice suits. Patient-pharmacist contact will be increasing in the future and will become an important part of the doctor-patient relationship as the pharmacist takes over prescribing drugs. Increasing numbers of drugs will complicate the pharmacist's duties and make mistakes more frequent. New methods of drug administration may cause "joint or vicarious liability" to threaten the pharmacist. Pharmacists should try to be accurate, aware of new developments in their field, imaginative, and responsible. (3 refs.) - *M. T. Lender.*

Bureau of Health Services
Public Health Service
Washington, D. C.

1875 DAVIES, PAMELA A., & RUSSELL, HAZEL. Later progress of 100 infants weighing 1,000 to 2,000 g. at birth fed immediately with breast milk: With a supplement on developmental progress. *Developmental Medicine and Child Neurology*, 10(6):725-735, 1968.

The progress at 2 years of 100 infants weighing 1,000-2,000 g at birth is reported; all were fed on undiluted breast milk and were given 60 ml/kg on the first day of life, increasing to 150 ml/kg by the fourth day. Two children were severely subnormal; 1 was microcephalic, the other had Down's syndrome. Three others had cerebral palsy of the type associated with immaturity. With the exception of the child with Down's syndrome, who was both immature and small for dates, the handicaps occurred in immature infants of appropriate birthweight for their gestation. This estimate of neurological handicap must be considered a minimum and further defects may appear later. Nevertheless, the concept of increasing handicap with decreasing birthweight, established by recent surveys, does not hold true for this small group at present. (35 refs.) - *Journal summary.*

Hammersmith Hospital
London W. 12, England

1876 ALADJEM, SILVIO. Phase contrast microscopic observations of the human placenta from six weeks to term. An anatomic and clinical correlation. *Obstetrics and Gynecology*, 32(1):28-39, 1968.

Human placentas (189 from uncomplicated pregnancies and 710 from complicated pregnancies) were studied by phase contrast microscopy and the incidence of perinatal complications was correlated with placental findings. The placental samples were examined for stromal, syncytial, or mixed pathology. Studies revealed that perinatal mortality occurred in 11.2% of the women with pathological placentas, while incidence was 0.9% in those with normal placentas. Mixed syncytial and stromal pathology was the most common finding. Edema and hypoplasia were found to be associated with stillbirth, prematurity and abortion. Hyperplasia of the syncytium and a vascular villus were associated with preeclampsia, prolonged pregnancy, and diabetes. The phase contrast evaluation of placentas may help predict and diagnose neonatal complications. (30 refs.) - *M. T. Lender.*

Medical College of Georgia
Augusta, Georgia 30902

1877 SHNIDER, SOL M., DE LORIMIER, A. A., HOLL, J. W., CHAPLER, F. K., & MORISHIMA, H. O. Vasopressors in obstetrics: I. Correction of fetal acidosis with ephedrine during spinal hypotension. *American Journal of Obstetrics and Gynecology*, 102(7):911-919, 1968.

Maternal and fetal cardiovascular and acid-base changes resulting from spinal hypotension and administration of ephedrine were studied in 8 pregnant ewes near term. Spinal anesthetic (3 ml solution containing 48 mg lidocaine and 5 mg tetracaine) was administered and after a 23-115 minute control period, blood was drawn anaerobically from the maternal femoral artery and vein and the fetal cotyledonary artery and analyzed for pH, pCO_2, and pO_2. Then, high spinal anesthesia accompanied by maternal arterial hypotension was accomplished and 25 mg ephedrine was administered intravenously. In all fetuses, clinical evidence of distress (hypoxia and acidosis with both respiratory and metabolic components) present during maternal hypotension was arrested and often corrected by ephedrine administration. Improvements in fetal oxygenation, carbon dioxide elimination, and fixed acid excretion were observed. When maternal hypoxia and hypercarbia accompanied spinal hypotension, fetal hypoxia was corrected only with the vasopressor and not with maternal oxygen administration. (25 refs.) - *M. G. Conant.*

Departments of Anesthesia, Surgery,
and Obstetrics and Gynecology
University of California Medical Center
San Francisco, California

1878 DUBOWITZ, VICTOR, WHITTAKER, G. F., BROWN, B. H., & ROBINSON, A. Nerve conduction velocity--An index to neurological maturity of the newborn infant. *Developmental Medicine and Child Neurology*, 10(6):741-749, 1968.

Ulnar and posterior tibial nerve conduction velocities in 39 short gestation, light-for-dates, and full-term normal infants were measured and the results were analyzed statistically. There was a highly significant correlation (>0.1%) between conduction velocities and gestational age and no correlation between conduction velocity and weight at constant gestation (as determined by studies on twins). From sequential measurements on the same infant, conduction velocity seems to increase at a faster rate after birth than *in utero*, but the difference is not statistically significant. There is a significant difference between the slower conduction velocity of a short gestation infant at 40 weeks postconceptual age and that of a full-term neonate of 40 weeks postconceptual age, indicating that conduction velocity may be used as an index for distinguishing short gestation from light-for-dates infants. (15 refs.) - *M. G. Conant.*

Department of Child Health
The Children's Hospital
Western Bank
Sheffield 10, England

1879 ROSENBLUM, WILLIAM I., & JOHNSON, MARGARET G. Neuropathologic changes produced in suckling mice by adding lead to the maternal diet. *Archives of Pathology*, 85(6): 640-648, 1968.

Suckling mice examined at 14, 17, 20, and 23 days of age showed neuropathologic changes when 1% or 0.5% lead carbonate was added to the maternal diet immediately after delivery, as compared to age-matched controls fed normally. Some animals were injected with trypan blue and some were anesthetized and perfused with normal saline and Bouin's solution and tissue then was stained with various

metallic impregnations. The intoxicated animals displayed faulty growth and development, had a high mortality rate, and showed characteristic hematologic evidence of lead intoxication (reticulocytosis, polychromasia, and basophilic stippling of erythrocytes). In the experimental mice, many fibrous intervascular strands were observed with the greatest concentration in the hippocampus and basal ganglia and alterations in the astrocytes and microglia were also seen. Astrocytosis in the hippocampus was recognized most easily in tissue stained with phosphotungstic acid hematoxylin. Consistent differences between experimental and control animals revealed by metallic impregnation, suggesting a general change in the glia and/or cerebral tissue of the intoxicated animals, seem to indicate that the neuropathologic changes were more directly related to a fundamental alteration in body metabolism rather than just expressions of lead poisoning. (13 refs.) - *M. G. Conant.*

National Institutes of Health
Building 9, Room 113
Bethesda, Maryland 20014

1880 SCHWARTZ, RICHARD A. Psychiatry and the abortion laws: An overview. *Comprehensive Psychiatry*, 9(2):99-117, 1968.

Of an estimated annual incidence of 1 to 1 1/2 million abortions in the United States, approximately 8,000 are performed legally; however, laws liberalizing indications for abortion now exist in 10 states and might be extended to others through cooperative efforts of interested disciplines--law, religion, politics, medicine, and psychiatry. Planned parenthood seems essential for parental happiness and a subsequent healthy attitude toward children. Unwanted and rejected children and unwed mothers create significant yet needless social suffering. Preventive medical indications for abortion law reform range from the dangers inherent in unskilled criminal abortion to the high incidence of congenital anomalies and MR in conditions such as maternal rubella during the first trimester of pregnancy. The high rate of population growth, perpetuation of family poverty, and denial of maternal civil liberty in being unable to choose abortion have all been cited in pleas for reform. The principal barriers to change are religious beliefs and the questionable findings of guilt and depression as psychiatric sequelae of abortion. The psychiatrist can play a major role in this controversy through research in the sequelae of abortion or unwanted pregnancy on both mother and child and in community leadership for legislative abortion reform. (66 refs.) *E. L. Rowan.*

Fairhill Psychiatric Hospital
Cleveland, Ohio

1881 KALTER, HAROLD. *Teratology of the Central Nervous System.* Chicago, Illinois, University of Chicago Press, 1968, 483 p. $17.50.

Pathological genes, environmental teratogens, chromosomal aberrations, and multifactorial etiological situations exert influence on the structure of the CNS. Defects of the CNS are commonly associated with experimental teratogens and are severe in all species of mammals. Experiments in mammalian teratology have established that mammalian embryos are subject to the laws of nature and can be systematically deformed by exposure to abnormal physiological conditions. Investigations of mammalian nutrient deficiencies have provided data on specific effects of riboflavin, folic acid, vitamin B_{12}, pantothenic acid, vitamin A, vitamin E, niacin, thiamine, pyroxine, food intake, and/or minerals. Other experimental agents associated with the induction of congenital malformations in mammals are vitamin A (in excess), trypan blue, ionizing radiation, alkylating agents, glutamine antimetabolites, alkaloids, hypoglycemic agents, alloxan, thyroid factors, antibiotics, antihistimines, thalidomide, urethen, and hydroxyurea. Congenital malformations of the CNS also have resulted from maternal immunization, infection, and mechanical procedures such as hypoxia, hyperoxia, uterine clamping, hyperthemia, hypothemia, noise, and surgery. Studies of laboratory, agricultural, domestic, and other mammals suggest that spontaneous malformations are probably due to the combined interaction of environmental and hereditary factors. Some types of CNS malformations appear to be more common in certain animal species than in others. This comprehensive review of the literature on anomalies of the CNS in animals should be a useful reference for teratologists, pharmacologists, physiologists, anatomists, embryologists, and experimental pathologists. (1,940 refs.) *J. K. Wyatt.*

CONTENTS: Experimentally Induced Malformations; and Spontaneous Malformations.

1882 SMART, REGINALD G., & BATEMAN, KAREN. The chromosomal and teratogenic effects of lysergic acid diethylamide: A review of the current literature. *Canadian Medical Association Journal*, 99(16):805-810, 1968.

The evidence for chromosomal and teratogenic effects of lysergic acid diethylamide (LSD) is strong, but conflicting research reports in areas of questionable relevance require that many more extensive studies be carried out. Of 8 papers concerned with chromosomal damage as a result of LSD, 6 reported damage and 2 did not. Two *in vitro* studies reported an increased frequency of breakage in leukocyte cultures and 1 reported the same finding in germ cells but all used concentrations far above equivalent human dosage. The frequency of breakage in cells of users and children exposed *in utero* was higher than controls in 3 studies and similar to controls in 2. There appeared to be little relationship between dosage, time of exposure, and frequency of abnormality. The frequency of breakage in controls was variable and breakage as a result of other drugs could not be ruled out. Both positive (3) and negative (1) results have been found when offspring of rodents given LSD when pregnant were examined, yet there is some agreement that high doses early in pregnancy have a teratogenic effect on offspring. The effects on human beings, in therapeutic or average dosage, on germinal cells, and over a period of time have yet to be elucidated. (20 refs.) - *E. L. Rowan.*

Alcoholism and Drug Addiction
Research Foundation
344 Bloor Street West
Toronto 4, Ontario, Canada

1883 FABRO, S., & SIEBER, S. M. Is lysergide a teratogen? *Lancet*, 1(7543):639, 1968. (Letter)

No significant teratogenic effects were detected in rabbits treated with lysergide tartrate at various intervals during early gestation with doses as high as 100 µg/kg of body weight. (8 refs.) - *J. Snodgrass.*

Department of Pharmacology
George Washington University
School of Medicine
Washington, D. C. 20005

1884 EGOZCUE, JOSE, IRWIN, SAMUEL, & MARUFFO, CESAR A. Chromosomal damage in LSD users. *Journal of the American Medical Association*, 204(3):214-218, 1968.

Chromosomal analysis was performed on 50 LSD users and 14 control Ss in order to determine the differential frequency of chromosomal damage. Blood cultures were prepared and a blind evaluation of 200 metaphases was made for each S. Control Ss had a breakage range of 6 to 16.5%, with a mean of 9.03%. The mean value for the LSD users was 18.76% with a range of 8 to 45%. The LSD users averaged between 100 µg and 1,000 µg/dose and each had total doses of 150 to 70,000 µg. Four Ss had been exposed *in utero* and had a mean breakage rate of 21.5%, with a range of 9.5% to 28%. All but 2 of the Ss had used marijuana or other drugs. No correlation was found between the number of breaks and total dose, frequency of use, or other drugs used. Chromatid and isochromatid breaks were most common. (28 refs.) - *M. T. Lender.*

505 NW 185th Avenue
Beaverton, Oregon

1885 A genetic trip. *Journal of the American Medical Association*, 204(3):259-260, 1968. (Editorial)

Studies of physical damage resulting in users of lysergic acid diethylamide (LSD) have revealed a higher breakage rate in leukocytic chromosomes (8%-45% compared with a normal 6%-16.5%), but additional data showed that Ss studied had taken at least 1 other drug and very often, chlorpromazine, as a therapeutic drug. With conclusive evidence that chromosomal abnormalities cause MR, further investigation of the physical effects of LSD should be expanded to include chlorpromazine, marijuana, amphetamines, barbiturates, cocaine, and other hallucinogens. (5 refs.) *J. P. West.*

1886 LOURIA, DONALD B. Some aspects of the current drug scene: With emphasis on drugs in use by adolescents. *Pediatrics*, 42(6):904-911, 1968.

The effects of drugs on people are unpredictable and are dependent on expectation, personality, and setting. LSD generally increases passivity in the United States and marijuana usually accentuates the established moods and patterns, but wide variations from the general often occur. Hashish (cannabis)

and tetrahydrocannabinal are much more powerful than marijuana and less widely used. A more important concern in the U. S. will be the increasing use of phenmetrazine and other stimulants, which can produce paranoia. The use of amphetamines has resulted in paranoid psychosis, bizarre behavior, and hepatitis. The recent decline in the popularity of LSD has brought an increased use of STP (serenity, tranquility, peace) which is 2,5 dimethoxy-4-methyl amphetamine, asthamador, decongestant stimulants, MDA (methylenedioxy-amphetamine), nutmeg (myristicin) and LSD, mescaline, and cocaine combinations. Physician participation in rehabilitation, evaluation of treatment programs, proper communications, education by physicians, restructured laws, and improved social aspects are the keys to solving the drug problem. (26 refs.) - *M. T. Lender.*

411 East 69th Street
New York, New York 10021

DEVELOPMENT

Physical, Emotional, and Social

1887 IIZUKA, RIHACHI, SAWADA, YOSHIAKI, NISHINA, NOBUHIRO, & OHI, MICHIE. The physical and mental development of children born following artificial insemination. *International Journal of Fertility,* 13(1): 24-32, 1968.

Artificial insemination tends to produce children in no way inferior to those a couple might expect if they were able to achieve natural impregnation. The IQ (Tanaka and Binet scales for children over age 2 1/2; development quotient for those younger) and a comparison of body length and weight with national standards was utilized in a follow-up study of 54 Japanese children born as a result of artificial insemination. IQs of these children were distributed over a higher range than expected, but parents tended to be of higher educational and social levels and this environment probably accounted for the difference. There was no relationship between IQ and maternal age at birth, neither were extremes of age represented. Both body weight and length of the study children tended to exceed controls. Nine children conceived from insemination with semen frozen to, stored at, and thawed from -97°C showed no significant difference from others in the study in intellectual or physical development. (11 refs.) - *E. L. Rowan.*

Department of Obstetrics and Gynecology
Keio University School of Medicine
Tokyo, Japan

1888 COMPARETTI, A. MILANI, & GIDONI, E. A. A graphic method of recording normal and abnormal movement patterns. *Developmental Medicine and Child Neurology*, 10(5):633-636, 1968.

The Benesh Movement Notation method of recording motoscopic data from 100 normal babies, 17 normal adults, and 93 CP children indicates that this method (1) is an effective instrument for recording normal and abnormal movement patterns; (2) allows for the incorporation of motoscopic data on a single page; (3) facilitates detailed pattern analysis; (4) requires specially trained physiotherapists; and (5) can be used at the present time only in CP centers where a neurologist and choreologist can work in collaboration. The motoscopic method of examination provides a more accurate way of measuring the integration of the motor patterns of the CNS than a traditional neurological examination. This examination includes the systematic observation of spontaneous postures and motor behaviors, a requested series of movements, and patterns of movement under specific stimulus conditions. The Benesh Movement Notation method plots and records all types of motoscopic data on a 5-line stave which is read from left to right. (4 refs.) - *K. Janet.*

Centro A Torrigiani C. R. I.
Via di Camerata 8
Florence, Italy

1889 SIMMONS, JAMES Q., III. Emotional problems in mental retardation: Utilization of psychiatric services. *Pediatric Clinics of North America*, 15(4):957-968, 1968.

Psychiatric services are essential in the treatment of emotional problems of the MR and their parents, but they are not performed independently of the professional team. To illustrate specific situations in which psychiatric intervention was deemed necessary, case histories are presented of: a moderate to severely retarded preschool child with behavioral deficits; a mildly retarded elementary school child; a borderline boy in the early adolescent period and his sexual behavior; a depressed, young, EMR male; and a neurotic parent. In general, traditional psychotherapeutic techniques were used; however, these were modified in several cases to fit the special needs of the patient. Operant conditioning techniques also have wide application and can be used regardless of the degree of retardation. (16 refs.) - *A. Huffer.*

760 Westwood Plaza
Los Angeles, California 90024

1890 FITZGERALD, DONALD E. A generation follow-up of some former public school mentally handicapped students. *Dissertation Abstracts*, 28A(8):2892, 1968.

A follow-up study conducted 20 years after 21 EMR males had left public school revealed that (1) the majority were self-supporting or had made a positive contribution to society, (2) the relationship between school-age IQ and adult IQ was not significant, (3) almost all had lost acquired academic skills, (4) the relationship between time spent in special education and life success ratings was not significant, and (5) life success ratings and the Wechsler full scale IQ and performance IQ were significantly related ($p=.05$). The WAIS, Jastak Wide Range Achievement Test, Bender-Gestalt, Draw-A-Person Test, and a sociological questionnaire were utilized to obtain current psychoeducational data. Most Ss tended to maintain the occupational status of their fathers. Fourteen Ss were heads of their households, and 1/2 of the Ss passed as average adults. (No refs.) - *K. Janet.*

No address

1891 BLUMENFELD, S., & HODOROABA, M. Comportement civilise et oligophrenie: Etude sur 123 eleves debiles mentaux (Civilized behavior and oligophrenia: A study on 123 mentally retarded students). *Annales Medico Psychologiques*, 126(1, Part 2):57-72, 1968.

The use of self-reports and behavior observations to study the personalities of 123 MR students (CA 13-17 yrs) who attended a special school revealed that acceptable "civilized behavior" may be achieved in the MR. A notebook was kept to record the behavior of each child and the opinions of educators. The children discussed good and bad behavior and read stories that illustrated the need for "civilized comportment." When they were asked to write papers on their own behavior, 79% discussed their behavior on excursions, in the street, at the movies, and in other people's homes; 13% discussed their behavior in school and at home; and 8% gave insignificant answers. Sixty-seven percent applied rules of good behavior to daily life, 25% behaved well at times, and 8% had no concept of good behavior. (4 refs.) - *M. Lenden*

Infant Neuropsychiatry Service
Hospital
Jassy, Rumania

1892 YULE, WILLIAM, & RUTTER, MICHAEL. Educational aspects of childhood maladjustment: Some epidemiological findings (symposium). *British Journal of Educational Psychology*, 38(Part 1):7-10, 1968.

Psychiatric and psychological investigations of the educational and cognitive correlates of maladjustment in 284 possibly maladjusted children (CA 9 to 11 yrs) revealed that the 126 children identified as having some clinically important psychiatric disorder had significantly lower WISC scores than a normal control group. Behavioral questionnaires completed by parents and teachers were used to screen the possibly maladjusted group from a population of 2,200 children. The largest diagnostic groups among the 126 children with significant psychiatric disorders were neurotic and antisocial disorders. Girls were more neurotic and boys were more antisocial. In general, there was a higher degree of total maladjustment among the male population. On Neale's reading test, the maladjusted children were retarded 19 months in accuracy and 17 months in comprehension. There appeared to be a strong association between severe reading retardation and antisocial behavior but not between poor reading and neurosis. However, since poor readers who are not maladjusted share some of the same developmental lags in language and perception and many of the same social characteristics as the maladjusted, it appears unlikely that the psychiatric disorders were brought about by reading failure. Poor reading may be a primary problem which brings about antisocial behavior, or psychiatric and educational problems may stem from factors in early childhood. (7 refs.) - *G. Trakas.*

Institute of Education and
Institute of Psychiatry
University of London
London, England

1893 EVANS, J. EMLYN. The needs of the adult mentally handicapped. *Teaching and Training*, 6(4):105-112, 1968.

The adult MR has many needs--social, educational, personal, employment, and accepting public attitudes--that ought to be fulfilled if he is to make an adequate community adjustment and live his life as a worthwhile citizen. He needs opportunities for the development of a wholesome self-image, association with the opposite sex, privacy, open employment, and guardianship assistance. Since life situations are teachable, parents, educators, and the general public should be trained to teach the MRs, for they play a key role in the development of the MR's self-image and in his learning to get along with others. There is a great need for changes in public attitudes regarding the MR because these attitudes greatly influence his life. Public responses and approaches to the MRs need to be re-evaluated, and there is a definite need for additional research in meeting the basic needs of the adult MR. (No refs.) - *S. Half.*

Mental Welfare Office
Denbighshire County Council
Wales, England

1894 CHAZAN, MAURICE. Inconsequential behaviour in school children (symposium). *British Journal of Educational Psychology*, 38(Part 1):5-7, 1968.

The "inconsequential" syndrome as it applies to the Bristol Social Adjustment Guide (BSAG) is an added dimension of the concept of restlessness found among some children. The BSAG was used in 3 studies involving a total of 907 Ss to discern the incidence of inconsequential behavior (IB). This population included regular junior and secondary classes, special classes of educationally subnormals (ESN) at junior schools, special schools for ESNs, and a control group in regular schools. Thirteen core symptoms--grouped under restlessness, anxiety about adult interest and affection, anxiety for approval of and acceptance by peers, and depression--were utilized as criteria. The incidence of IB was 2.1% for normal children in regular schools, 5.9% for ESNs in special schools, and 17% for ESNs in special classes at junior schools. There was no significant difference in either sex or age of any group; however, boys tended to evidence more IB than girls. IB found among the 3 groups correlated with school failure but maladjustment of the Ss was not as severe as with children with the hyperkinetic syndrome. Since 4 of the core symptoms had a low frequency or discriminating power, these symptoms should be replaced by more meaningful items. (4 refs.) - *G. Trakas.*

No address

1895 CLARK, GARY M. A summary of the literature on behavior disorders in brain damaged children. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., Council for Exceptional Children, 1968, p. 182-210.

Clinical studies of brain damaged children with behavior disorders consistently demonstrate the presence of variable emotional behavior, disturbed sensorimotor functioning, and a variety of other disorders including school learning and school adjustment problems. The psychological problems of organically disturbed children may be due to: motor disorders which necessitate prolonged dependency on the mother; perceptual and intellectual problems which lead to frustrations, misinterpretations of reality, and bizarre attempts to make contact with the world; and disturbed impulse patterns which cause distortions in action patterns. Typical diagnostic plans designed to differentiate between organically and nonorganically impaired children are composed of careful case histories, neurological tests, psychological and personality assessment batteries, and EEGs. Organic impairment may be treated by using special educational procedures, psychotherapy, operant conditioning procedures, tranquilizing medications, and parental guidance. Treatment services may be provided at public schools, child guidance clinics, residential treatment centers, hospital units, and day-care centers. The greatest progress in the area of behavior disorders in brain-damaged children in the last 12 years has been in diagnostic tools. Other developments have concentrated on improvement and refinement, rather than on innovation. (163 refs.) - *J. K. Wyatt.*

1896 YARDEN, PAUL E., & SURANYI, ISAAC. The early development of institutionalized children of schizophrenic mothers. *Diseases of the Nervous System,* 29(6):380-384, 1968.

Careful developmental records were kept on 108 children whose mothers suffered from schizophrenia during pregnancy, post-partum psychosis, or chronic physical disease during pregnancy and who were consequently placed in a controlled institutional environment during the first 6 months of life. Birth-weights of infants whose mothers had antenatal or post-partum schizophrenia were lower than those of infants whose mothers had chronic physical disease, but in all 3 groups, the male infants were lighter than the females (significantly reversed from the expectation in the normal population). Children whose mothers were schizophrenic during pregnancy had significantly less weight gain during their first 6 months than did children of mothers with post-partum psychosis. Children with marked retardation (motor, behavioral, adaptational, and language) or moderate communication defects were relatively rare and equally distributed in all 3 groups, and this distribution bore no relationship to birth-weight or weight increase. In the absence of birth complications of differing environmental conditions, stresses during pregnancy must have influenced the children's development after birth. (12 refs.) - *E. L. Rowan.*

Kfar Shaul Government Mental Hospital
Jerusalem, Israel

1897 ARAI, SUSUMU, ISHIKAWA, YOSHIHIRO, & FUJIMOTO, HIROHITO. An electroencephalographic study of delinquents: Relationship between EEG-findings and "infraction" behaviors observed in a medical training school. *Psychiatria et Neurologia Japonica,* 70(4):302-316, 1968.

The resting EEG findings of 45 epileptic and 128 non-epileptic inmates (CA 14 to 21 yrs) in the Kanto Medical Reform and Training School, Tokyo, Japan, differed in that epileptic Ss, especially those guilty of violent infractions, evidenced a higher incidence of the θwave band among the various wave bands than non-epileptic Ss. Three groups of non-epileptic Ss classified as a "frequent violent infraction" group, a "rare violent infraction" group, and a "non-violent infraction" group showed a slower frequency of dominant background rhythms, more variable seizure activity in resting EEG, lower thresholds for pentylenetraxole or bemegride activation, and a higher incidence of abnormal EEGs than a "no infraction" group of non-epileptic Ss. There appeared to be correlations between anterior slow waves and the degree of violence of an infraction, and between posterior slow waves and the presence of infraction behavior. (47 refs.) - *K. Janet.*

Department of Neuropsychiatry
University of Tokyo
Tokyo, Japan

1898 HAWORTH, MARY R., & *MENOLASCINO, FRANK J. Some aspects of psychotic behavior in young children: Thoughts on the etiology. *Archives of General Psychiatry*, 18(3):355-359, 1968.

Video-tape recordings of standardized play interviews with normal and disturbed preschool children suggest that psychotic behavior represents deviant development from expected childhood behavior rather than a fixation at an early level or slow development as found in children with organic brain syndromes and/or sensory defects. Deviant behaviors in schizophrenic and autistic Ss were observed in the speech and mouth area (echolalia, inability to shift to pronomial reversal, grimacing, and mouthing movements), in hand manipulations (use of adult hands or toys to make contacts, tapping, finger movements, and hand flapping) and in visual avoidance (staring off into space). These behaviors derive from normal preoral and oral stages and represent avoidance and withdrawal in the use of mouth, hands, or eyes and serve to effectively isolate the child. (10 refs.) *E. L. Rowan.*

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Omaha, Nebraska 68105

1899 ASAKA, AKIO. Psychiatric study of six psychotic patients with Klinefelter's syndrome. *Psychiatria et Neurologia Japonica*, 70(11):990-1018, 1968.

Of 6 psychotic patients (CA 37-68 yrs) with Klinefelter's syndrome (chromatin-positive buccal smears and a karyotype of 47,XXY), 5 had below normal intelligence and abnormal EEGs. All Ss had a lowered heterosexual drive and evidenced schizophrenic and manic-depressive symptoms. There were 3 cases of divorce due to sexual impotency in the first year of marriage, 3 cases of homosexuality, and 1 case of pedophilia. All Ss had underdeveloped secondary sex characteristics and microorchism. Rorschach findings indicated poor thought content, deficient mental activity, psychic inactivity, and a tendency toward depression. Since these cases cannot be classified as either typical schizophrenia or as manic-depressive psychosis, the sex chromosome aberration appears to be a *sine qua non* for the specific type of psychosis manifested by these patients. (112 refs.) *K. Janet.*

Institute of Brain Research
University of Tokyo
School of Medicine
Tokyo, Japan

1900 HALPERN, ANDREW S. Why not psychotherapy? *Mental Retardation (AAMD)*, 6(6):48-50, 1968.

Although a variety of studies reveal that 1:1 verbal psychotherapy, art therapy, music therapy, role playing, play therapy, and group therapy have been successfully used in the treatment of the MR, W. I. Gardner is against training psychologists to function as psychotherapists with the MR. He suggests that psychologists can be effective in bringing about behavioral change when they serve as consultants to those who interact with the MR, directly manipulate the environment of the MR, or interact directly with the MR as behavior therapists. The basic arguments which support Gardner's theory are judged to be misleading, argumentative, limiting, and challenging by other professionals. The various treatment therapies, traditional psychotherapy, and the therapies suggested by Gardner should be further explored and evaluated to determine which techniques are best. (18 refs.) - *S. Half.*

New York State University
Buffalo, New York

1901 DAVIS, DAVID, KAUSCH, DONALD F., & GOCHROS, HARVEY L. Psycho-social characteristics of check offenders. *Comprehensive Psychiatry*, 9(5):474-481, 1968.

A comparison of the psychological and social characteristics of 76 men who were imprisoned for the first time as check offenders with those of 73 men who were imprisoned for the first time for other crimes revealed that check offenders were older than non-check offenders and that more of them were white, the eldest or the only child in the family, had military backgrounds and honorable discharges, were married, and had previous convictions. More than 75% of the check offenders had below average intelligence (mean IQ 89.4--WAIS--with a marked skewing of scores toward the lower end of the distribution). On the Raven's Progressive Matrices, 13 scored below the fifth percentile, 53 scored between the fifth and fiftieth percentiles, and only 4 scored higher than the eightieth percentile. Most check offenders had unstable work backgrounds, were unable to get along with authority, and came from families often characterized as contributing to criminal behavior. The distribution of psychiatric disorders (with an overlapping of

categories) was: character disorder, 63%; alcoholism, 22%; organic brain syndrome, 4%; schizophrenia, 8%; MR, 6%; and situational adjustment reaction, 6%. Eight percent did not manifest a mental disorder. Structured interviews, prison record reviews and psychological tests were used to obtain data relevant to the offenders' psychological and social characteristics. These data suggest that screening procedures should be used with first offenders to identify future check-passers; special preventive programs should be established for individuals who receive general or punitive discharges from the military services; and check-passers should undergo psychiatric screening, and participate in a vigorous alcoholism prevention program and occupational training. (10 refs.) - *K. Janet.*

University of Missouri
School of Medicine
Columbia, Missouri

1902 TAYLOR, LLOYD A. Aprasia in children. *Dissertation Abstracts*, 29A(2):689, 1968.

The findings of an exploratory study of the degree of aprasia present in normal and MR male children residing in family or institutional settings revealed (1) a significantly higher degree of aprasia among MRs than among normal children of the same CA, (2) little difference between MRs and normals with the same MAs, and (3) a greater degree of aprasia among institutionalized children than among children residing in a family setting. One hundred and twenty Ss were equally divided between family and institutional settings and represented 3 ability groups: normal 6-year-olds, normal 12-year-olds, and MR 12-year-olds (IQ 65). An interview method based on original structured situational response settings was used to probe for each S's perception of 8 comprehensive group characteristics. The insight and foresight of each S were measured in the areas of family, play, work, and school. (No refs.) - *K. Janet.*

No address

1903 GUNZBURG, H. C. *Social Competence and Mental Handicap.* London, England, Baillere, Tindall & Cassell, (Baltimore, Maryland, Williams & Wilkins, exclusive U. S. agents), 1968, 225 p. $9.25.

MRs who live outside hospitals and institutions should receive education and training which will ameliorate the effects of their mental handicap and facilitate their adjustment to the requirements of society. Research data indicate that the content of rehabilitation programs should emphasize social education rather than academic education and/or work training. Although the development of social competence in MRs is delayed and much slower than in normal children, it is continuous and is assisted by the maturation of motor skills, increased life experiences, and prolonged education and training. The Progress Assessment Chart of Social Development (PAC) provides data on social skills related to communication, self-help, socialization, and occupation. PAC results provide a suggestive pattern of the strong and weak areas of a child's knowledge and competence which may be used as a guide for teaching efforts. In order to obtain an approximate idea of the functional level of an MR child, he should be compared with children of the same intelligence and age. Comparisons with normal children only indicate the degree of a child's handicap and do not yield information on how well the child functions in spite of his handicap. Because of the limited knowledge available on effective teaching procedures for the social education instruction of MRs, new teaching devices and approaches which take into account the particular barriers in communication occurring between the teacher and the MR child are needed. This book should be of interest to psychiatrists, psychologists, educators, special educators, administrators, and social workers. (80 refs.) *J. K. Wyatt.*

CONTENTS: The Person; Assessment of Social Knowledge; Development of Social Competence; The Lesson: Academic or Social Education? The Framework; The Contents of a Social Education First Aid Program; Teaching Aids and Teaching Methods; and The Outlook.

1904 RIMLAND, BERNARD. On the objective diagnosis of infantile autism. *Acta Paedopsychiatrica*, 35(4-8):146-161, 1968.

There is a deplorable widespread tendency to becloud the uniqueness of early infantile autism or "Kanner's syndrome" through loose use of the words "autism" or "autistic." Since progress in etiology and cure depends upon accurate diagnosis, the diagnosis of autism should be used only when children resemble very closely those described by Kanner. Preliminary findings are presented on the special Diagnostic Check List which appears in the second edition of the writer's book *Infantile Autism.* The data from the first 67 children on whom check lists were available strongly support Kanner's earlier observations on the uniqueness of the syndrome. A

striking new finding is that at age 5 1/2 the syndrome changes markedly. (13 refs.) *Journal summary.*

4758 Edgeware Road
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1905 GEIGER-MARTY, O. Beitrag zum fruhkindlichen autismus (Study on early infantile autism). *Acta Paedopsychiatrica,* 35 (4-8):178-188, 1968.

This study is an attempt to show how in early infantile autism the step toward inspiration and cognizance is either not made or is considerably delayed. It is considered that the cause is the retardation of maturation of the cortico-thalmic area and that this is responsible for the failing eye contact, the failing control of perception, for the elimination of cognition, and the void of emotionality of the child with Kanner's disease. According to this concept, autism and anxiously obsessional adhering to the spational environment are secondary symptoms of organic causality. As in Kanner's autism, the diagnosis is usually made rather late and therefore perhaps the most opportune moment from the viewpoint of therapy is missed, new methods should be worked out which will permit the assessment of sensory perception functions in the first year of life. In addition, a brain curve examination should be performed as early as possible which must be repeated at definite periods in order to establish the maturation of different brain areas. (4 refs.) - *Journal summary.*

Schifflande 22, CH-8001
Zurich, Switzerland

1906 LUTZ, J. Zum Verstandnis des Autismus infantum als einer Ich-Bewusstseins-, Ich-Aktivitats-, und Ich-Einpragungsstorung (Toward a better understanding of infantile autism as a disturbance of ego-consciousness, ego-activity, and ego imprint). *Acta Paedopsychiatrica,* 35(4-8):161-177, 1968.

Developmental and ego psychology interpretations of autism indicate that its manifestations are the consequences of disturbed ego-activity, ego-consciousness, and ego-imprint. Both relation disorders with the outer world and motor and language disorders reflect ego-inactivity or ego-weakness which include retardation of the development of ego-consciousness, language and the differentiation of movements. The various ego disturbances are to be found in many degrees and improve in the course of time. The personality disintegration apparent in severe forms of autism reveals its relationship to schizophrenia. In the beginning, mild forms of autism may appear as retarded development, impairment of sensory perception, or organic damage. Individuals with mild forms are far from being disintegrated personalities; they are orderly and harmonious individuals, although at an elementary level. Among the manifold theoretical causes of ego disturbances are predisposition, organic, and reactive. (5 refs.) - *K. Janet.*

Alte Landstrasse 21, CH-8702
Zollikon ZH, Schweiz

1907 SOROSKY, ARTHUR D., ORNITZ, EDWARD M., BROWN, MORTON B., & RITVO, EDWARD R. Systematic observations of autistic behavior. *Archives of General Psychiatry,* 18(4):439-449, 1968.

Systematic observations of the unusual and stereotyped motor and perceptual behavior of 6 autistic children and 1 child with Down's syndrome was carried out over 6 hour periods while the children played in social isolation behind a 1-way mirror. Frequency and duration of verbal sounds, crying, perceptual behaviors (staring, regarding, posturing, and arrest reactions), hand behaviors (flapping, oscillating, spinning, scratching), total body behaviors (whirling, circling, darting, walking on toes), and rhythmic behaviors (rocking, head banging, head rolling) were recorded on a multiple event recorder. Each autistic child showed a unique repertoire of behaviors but the child with Down's syndrome showed no unusual motor or perceptual behavior. The observers did not differ significantly in their measurement of most behavior items. Peaks of activity occurred randomly and were not related to time of day or length of time in the experimental situation and the behavior patterns were consistent over prolonged periods of time. One child observed on 10 different occasions showed suppression of autistic behavior during febrile illness and apparent substitution of autistic hand behavior by excessive scratching secondary to allergic pruritis and top spinning. This demonstration of prolonged systematic autistic behavior in a closed, controlled setting must be taken into account in future experiments and observations of environmental manipulation. (15 refs.) *E. L. Rowan.*

16611 Ventura Boulevard
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California 91316

1908 SCHACHTER, M. Evolution et pronostic de l'autisme infantile precoce: Etude catamnestique d'un cas suivi de 4 a 17 ans (Evolution and prognosis of early infantile autism: Catamnestic study of a case followed from 4 to 17 years). *Acta Paedopsychiatrica*, 35(4-8):188-199, 1968.

The developmental prognosis of Kanner's early infantile autism is relatively rarely studied in spite of some contributions on this subject. The author presents a clinical and psychological study of a boy whose diagnosis was made at the age of 4 years and 6 months. Until the age of 17 years a follow-up has been done. In spite of his normal intellectual development (combined with school failure) it is interesting to note that this young man shows an undisputable psycho-infantilism at the emotional and social level. (16 refs.) - *Journal summary.*

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1909 Childhood autism. *Canadian Medical Association Journal*, 99(4):187-190, 1968. (Editorial)

In order to provide for the proper identification and treatment of autistic children, Canada needs to conduct an epidemiological survey, establish a central registry, provide well trained diagnostic teams and professional services, provide for long-term treatment planning, and expand existing treatment facilities. The prevalence rate for autism in a recent epidemiological study of 8- to 10-year-olds in Middlesex County, (England) in which lack of responsiveness to other people and insistence on the preservation of sameness in the environment were used as criteria for autism was 4.5/10,000 children. If Canada has the same prevalence rate, the problems of misdiagnosis and delayed treatment are understandable because many family physicians and pediatricians will never see an autistic child. Physicians should make themselves aware of the essential diagnostic criteria of autism as an autistic child is not necessarily MR. (12 refs.) - *K. Janet.*

1910 TRIBBEY, JOHN A., LOUARGAND, EDNA M., ALLEN, ADINA, & OLSEN, JERRY. Sacramento's day-treatment center for autistic children. *California Medicine*, 108(3):201-204, 1968.

After 2 years of operation the Children's Center of Sacramento (California), an intensive day-treatment center for autistic children, is cautiously optimistic that many of these children can be treated and sufficiently helped so that they can assume their respective roles within their family units, schools, and communities. A positive aspect of a small specialized day-care center includes the possibility of emotional relationships between the staff and children. The main factor in successful treatment of an autistic child is early diagnosis. Pediatricians or family physicians should have greater awareness and recognition of autism. Parents of autistic children generally have many emotional conflicts. Individual or group counseling can help to satisfactorily resolve many of these problem areas. The Sacramento Center provides service for 15 ambulatory children (CA 2-12 yrs). The program of the center is planned, organized, and structured to meet each individual's particular needs. In some cases drug therapy to help decrease and stabilize hyperactivity and aggressive behavior has been of marked value. Two children who have been discharged from the Center have learned to communicate effectively, attend public school, and make an adequate adjustment to their home and community environment. A specialized day-treatment center of this type has a great deal to offer the psychotic child and his parents. (12 refs.) - *S. Half.*

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1911 Music for John. *Parent's Voice*, 18(2): 14, 1968.

The music interests of an autistic boy were used to encourage him to relate to his mother and a music therapist. He began by greeting each note of his chimes and progressed to greeting people. His ability to play and sing simple tunes is expected to serve as a basis for further therapy and the development of additional interpersonal relationships. (No refs.) - *C. Rowan*

Language, Speech, and Hearing

1912 SCHIEFELBUSCH, RICHARD L., COPELAND, ROSS H., & SMITH, JAMES O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations.* New York, New York, Holt, Rinehart and Winston, 1967, 208 p. $5.95.

Language dysfunctions are a basic feature of MR and seem to be closely associated with the primary distinguishing features of MR--subnormal intellectual functioning and maladaptive social behavior. Definitions of language development must provide for distinctions between speech, language, and communication. In order to provide for the accurate identification of specific areas of speech impairment, speech behavior must be categorized in terms of articulation, rhythm, voice, and speech. Language learning refers to the acquisition of a phonology, a morphology, and a syntax. Studies of language impairment illustrate that verbal cues and instructions facilitate language learning. When a child has acquired language but does not know when or how to use it, communication is impaired. Language training programs for young MR children should consider (1) the effects of sensory enrichment and mediation experiences during infancy on later language acquisition, (2) systems of sensory input that will affect language acquisition improvements, (3) special arrangements which may produce maximum treatment effectiveness, and (4) those training effects which will result in the most effective communication in social and vocational arrangements. Generalizations include: approaches to language training can be developed for MRs of all ages and for all developmental levels; strategies can be designed for improving the living conditions in any setting where MRs receive care or training; the development of adaptive behaviors in MRs may be facilitated by early speech and language training; and language function gains may be related to the degree of dedicated participation of resourceful, professional personnel. This book should be of interest to psychologists, educators, special educators, speech pathologists, audiologists, and professionals in the communication sciences. (428 refs.) - *J. K. Wyatt.*

CONTENTS: Language and Mental Retardation: A Review of the Literature (Jordan); Psycholinguistics in the Study of Mental Retardation (Carroll); Toward a Psychological Analysis of Verbal Communication Skills (Rosenberg & Cohen); The Relevance of Animal Research (Michael); The Development of Communication Skills (Schiefelbusch); Neurological Approaches to Mental Retardation (Wepman); Procedures for Evaluating Processes Associated with Receptive and Expressive Language (Spradlin); Issues for Speech and Language Training of the Mentally Retarded (Schlanger); Language Training for Mentally Retarded Children (Richardson); The Slow Learner, Grouping Patterns, and Classroom Communications (Drews); and Summary: Discussion and Recommendations.

1913 JORDAN, THOMAS E. Language and mental retardation: A review of the literature. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations.* New York, New York, Holt, Rinehart and Winston, 1967, Chapter 2, p. 20-38.

The existence of a high incidence of language deficiency in the form of speech defects in MR children has been demonstrated by a number of studies. Evidence substantiating a causal relationship between MR and linguistic retardation includes: (1) consistent reports that speech development is delayed in MR children; and (2) evidence which suggests that language problems are a sequelae of prematurity and complications of the early developmental period. Linguistic problems

found in MR children when compared with normal children are inferior quality of language, less common use of abstraction, shorter sentences, syntax below age level, failure to reach a conceptual level of language achievement, and inability to use language to mediate learning experiences in an efficient manner. Circumstantial influences which may have an effect on the language development of MR children are de-emphasis of the normal processes of family stimulation, disruption of the mother-child relationship, and separation from family. Speech therapy outcome studies with MRs reveal that improved articulation can increase the efficiency of communicative behavior, growth in adjustment and affability can be by-products of attempts to improve speech, and special psycholinguistic instruction can significantly increase psycholinguistic attainment. Programed learning and operant conditioning should be used to teach language to MRs and aphasics. (149 refs.) - *J. K. Wyatt.*

1914 CARROLL, JOHN B. Psycholinguistics in the study of mental retardation. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations.* New York, New York, Holt, Rinehart and Winston, 1967, Chapter 3, p. 39-53.

The techniques of psycholinguistics and linguistics may be used to ascertain whether or not there is a language deficit in MR, and if 1 is identified, to effect a precise definition of its nature. The study of the grammatical developments of the MR would provide data as to whether MR development is a slow motion picture of normal development, or strikingly different from the normal developmental stages. Careful analyses of the developmental stages of linguistic phenomena such as the development of thought may eventually provide better indices of mental development than are presently available. It may be possible to use the mental attainments which MR children manifest in language development as leverage to enhance other kinds of mental development. In linguistic terms language is defined as the system or code which underlies the manifestation of speech. The distinct aspects of language are its phonology, its morphology, its syntax, and its semantics. Linguistic findings on the basic elements of a language system and its development may be used to identify their presence or absence in children with varying degrees of MR. Data from studies of generative grammar in normal children may be used to identify the rate at which MR children acquire grammatical mechanisms and the phases of language structure. Studies of utterance frames, vocabulary, conceptual attainment, word association, echoic behavior, grammatical transformations, and storage of memories in MRs will both provide developmental data and specific information which may be used for language training. Language test development should concentrate on establishing a base line of discriminative behavior for each subject. (39 refs.) - *J. K. Wyatt.*

1915 ROSENBERG, SEYMOUR, & COHEN, BERTRAM D. Toward a psychological analysis of verbal communication skills. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations.* New York, New York, Holt, Rinehart and Winston, 1967, Chapter 4, p. 54-80.

Studies of the referential behavior of normal adults and children support the theory that (1) speaker response selection is a 2-stage process composed of a sampling stage and a comparison stage, and (2) listener identification of a referent is dependent on the associative strength of the referent. During the sampling stage, a response is chosen at random from all the word associations of the referent stimulus. During the comparison stage, the speaker's decision to utter or reject the sampled referent is determined by its relative associative strength to each of the referent and nonreferent stimuli in the array. The referential behavior of young children differs from that of adults in that their repertoire of names for each referent is small, and in that the comparison stage exercises less influence over the speaker's response selection. In the course of normal development children gradually acquire more specialized referent-response repertoires and a comparison stage. The comparison stage may possibly develop either through the modeling mature speaker behavior, or through the acquisition of listener comparison skills which precede, and serve as a basis for, the development of speaker comparison skills. In order to investigate the communication skills in which MRs are deficient, a systematic experimental program aimed at the detailed analysis of the total normal communication process is needed. (24 refs.) - *J. K. Wyatt.*

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1916 MICHAEL, JACK. The relevance of animal research. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 5, p. 81-91.

Animal research experiments provide relevant data on the evaluation of behavior, motivation, reinforcement, and stimulus control which may be used in the education and training of the MR. Language learning in MRs may be facilitated if the behavior involved is analyzed into its components and if the difficulty of these behavior components is determined. To evaluate the true potential of recovery from MR, effective long-term reinforcers which will maintain intense work over the long period of time needed to overcome some deficiencies, need to be identified. A comprehensive token culture may serve as an adequate reinforcer for some MRs. A well controlled remedial environment in which relevant variables are controlled may be required for the development of a repertory of socially appropriate verbal behavior. Terrace's findings on errorless discrimination learning are of considerable significance for the language training of MRs. These techniques bring operant responses under stimulus control by the use, and gradual removal of, irrelevant stimuli and by preventing errors. (5 refs.) - *J. K. Wyatt.*

1917 SCHIEFELBUSCH, RICHARD L. The development of communication skills. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 6, p. 92-109.

It is possible for the functional processes of language and communication acquisition to break down or be stimulated during the critical developmental stages of sensory stimulation and babbling, attachment, word acquisition and social exploration, and language acquisition and experience. During the early prelinguistic periods of development infants need to have a rich social interaction experience with adults which provides them with visual, tactual, auditory, and kinesthetic stimulation. During the period of attachment which lasts from about 6 to 14 months, children differ markedly in the amount of stimulation they require. During this time the child is consolidating his relationship with his mother. The parent should provide appropriate amounts of stimulation by establishing a condition of mutual adaptation in which the parent responds to the needs and demands of the infant and the infant learns to respond to the tendencies of the parent. The preservation of a stable mother-child relationship is very important during the period of attachment because the mother serves as a mediator who provides both sensory stimulation and controls the environment. The stage of word acquisition and social exploration begins at approximately 12 months and lasts until the child is about 27 months. It is characterized by increasing independence in motor functioning and verbal utilization, and represents a transition from infant dependency to a more exploratory and active participation in the world. The rate of the child's language acquisition during this period appears to be related to the amount of experience he has had with adults, and to the variety of material and stimuli provided by his environment. In order to understand the speech development of MRs, data on the family influences, parent models and reinforcement history of children with delayed language development are needed. (43 refs.) - *J. K. Wyatt.*

1918 WEPMAN, JOSEPH M. Neurological approaches to mental retardation. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 7, p. 110-118.

Neurological approaches to the study of language and speech development in MRs are discussed. Recommendations are: (1) recognize the potential neurological deficit in MR and arrive at research interpretations by comparing children who do not have demonstrable neurological trauma with children with identifiable neurological deficits; (2) express the approach in terms of the specific discipline of the researcher and not in terms of a related discipline; (3) consider the approach in terms of the research worker's concept of neural function; (4) employ verbal language parameters to study frequency of use and the part of speech of each word used; (5) investigate the relationship between prelinguistic and linguistic function in both speech and language; and (6) undertake a comparative study of the language development of MR and unimpaired children to discover whether or not the slower progress of MRs is advantageous for the description of language acquisition processes. In order to arrive at more specific information on language and speech development, explicit distinctions should be maintained between studies of speech and studies of language. (6 refs.) - *J. K. Wyatt.*

1919 SPRADLIN, JOSEPH E. Procedures for evaluating processes associated with receptive and expressive language. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 8, p. 118-136.

In order to establish terminal goals for language training programs for MRs, the language requirements of the community should be established by studying the language characteristics of its normal members. A developmental study of the receptive and expressive language of normal children can then be made to identify appropriate intermediate steps of language acquisition which may be used as guidelines for a language training program for MRs. Program construction would then center around the general procedures of behavior modification and programed learning. Language evaluation based on the language training program would be used to determine the time at which a child should enter the program by providing data on prerequisite language behavior. Evaluation procedures related to receptive language include hearing evaluation, pure-tone discrimination, phonemic discrimination, grammatical discrimination, and referential or semantic discriminations. Evaluation of expressive language should include a consideration of prelanguage vocalizations, phoneme production, grammatical productions, grammatical transformations, and referential of semantic control over vocal behavior. (41 refs.) - *J. K. Wyatt.*

1920 SCHLANGER, BERNARD B. Issues for speech and language training of the mentally retarded. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 9, p. 137-145.

Therapy programs aimed at the speech and language training of MRs should be guided by broad learning principles, weigh both abilities and disabilities, and aim at helping each individual attain the maximum physical and intellectual functioning of which he is capable. Communication may be improved if consideration is given to eliminating noise (impaired speech, hearing, and sight) in the therapist as well as in the MR child. Therapy programs should begin at each individual's present level of functioning, and should provide variety within the program structure, meaningful activities, forward progress and action, and direct therapy on sound for higher grade MRs. Subjects must have some understanding of what they are expected to learn. Issues in the speech and language training of MRs which must be answered are concerned with the characteristics and training of therapists, the establishment of therapy selection criteria, the evaluation of preliminary approaches to therapy and therapy procedures, the evaluation of success, and exploration of nontraditional therapy methods. (3 refs.) - *J. K. Wyatt.*

1921 RICHARDSON, SYLVIA O. Language training for mentally retarded children. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 10, p. 146-161.

The results of a language training program for MR children at the University of Oklahoma Child Study Center indicate that early sensory-motor training, beginning at the preverbal experience level, is of major importance to the language development of these children. Techniques used in the program are related to research evidence on the development of language and thinking which demonstrates that (1) early exposure to a variety of looking and listening experiences is important in language development, (2) primary learning requires perceptual and preverbal experiences, (3) there is a close relationship between motor movements and perceptual development, (4) language development requires the development of both motor and perceptual patterns, (5) the major source of internal mediators is the orienting response, (6) linguistic labels serve to mediate learning processes, and (7) language development is both a part of and a result of primary learning. The children who participate in the program range in age from 3 1/2 to 8 years and must have a functioning age of at least 1 1/2 years at the time of admission. Although the etiology of the group is heterogeneous, the majority of the children evidence neurological dysfunction, including inadequate sensory-motor development, impaired attention and perception functions, and disorganized behavior. The program uses Montessori materials and techniques to teach the children to create order in sensory input. The materials progress slowly from the concrete to the abstract and are designed to facilitate the development of self-care, care of the environment, sensory discrimination, and writing, reading, and mathematical abilities. (21 refs.) - *J. K. Wyatt.*

1922 DREWS, ELIZABETH M. The slow learner, grouping patterns, and classroom communications. In: Schiefelbusch, Richard L., Copeland, Ross H., & Smith, James O., eds. *Language and Mental Retardation: Empirical and Conceptual Considerations*. New York, New York, Holt, Rinehart and Winston, 1967, Chapter 11, p. 162-176.

The results of a study of the effects of homogeneous and heterogeneous grouping patterns and teaching adaptations in the ninth grade level English classes on the personal development of slow learners revealed that (1) slow learners in homogeneous classes made significantly more class contributions and gave themselves significantly higher self-ratings than slow learners in heterogeneous classes, (2) there was a significant difference in the quantity and difficulty level of teacher participation with students of different ability levels and groupings, and (3) slow learners in homogeneous classes received higher ratings from both teachers and peers than slow learners in heterogeneous classes. This 1-year research project involved 118 slow learners, 325 average, and 150 superior students from 4 schools who were randomly assigned to either homogeneous or heterogeneous classes. Data from classroom observers suggest that homogeneous grouping provided a warm and accepting environment in which slow learners were able to become much more involved in the learning process and in which they were more able to gain teacher and peer acceptance. These factors enhanced social development by increasing feelings of self worth and competence. Communication problems in slow learners are extremely important because they are closely related to broader problems of interpersonal intercourse and can impair both the ability to learn and the ability to express what has been learned. Research with slow learning adolescents should be directed toward the identification of distinctive communication patterns and thought processes and personality variables, the optimal and permissible ranges of achievement and ability differences in the classroom, the total potential of the slow learner, and instructional materials and teacher roles. (11 refs.) - *J. K. Wyatt.*

1923 SEMMEL, MELVYN I. Language behavior of mentally retarded and culturally disadvantaged children. In: Magary, James F., & McIntyre, Robert B., eds. *Fifth Annual Distinguished Lectures in Special Education.* Los Angeles, California, University of Southern California, 1967, p. 31-47.

If a diagnostic approach which is focused on the analysis of the quality and competence of language behavior is used with MR and non-MR disadvantaged children, then contemporary linguistic research may eventually provide the knowledge for understanding and modifying of their school performance. Linguistic performance is defined as observable language behavior, while linguistic competence is the acquired linguistic information which determines the maximum limits of linguistic performance. An understanding of the extent to which language competence has been acquired by an individual may eventually prove to be an effective means of determining the upper limits of academic functioning. Both simple and mediated S-R models of language acquisition have been rejected by most psycholinguists. Contemporary theory supports the position that a child has a biologically based, inborn capacity for language, the development of which depends on the acquisition of hypothesized language universals. Linguistic studies of MR and non-MR disadvantaged children indicate that MRs have a characteristic pattern of deficient performance on the ITPA sequential tasks which is not evidenced by non-MR disadvantaged children. Other research studies have revealed that (1) 10- to 13-year-old non-MR disadvantaged children appear to use grammatical strategies in language encoding and decoding more than MRs, (2) there appear to be qualitative differences in the linguistic strategies used by MR and non-MR disadvantaged children, (3) the recall of 9- and 13-year-old MRs was facilitaged by nouns and adjectives and increased in difficulty when verbs and adverbs were used, and (4) paired-associate learning in MRs was significantly facilitated when the paired words were embedded in the context of a sentence as opposed to being presented in isolation. (17 refs.) - *J. K. Wyatt.*

1924 MORKOVIN, BORIS V. The role of language in the development of the preschool deaf child. In: Magary, James F., & McIntyre, Robert B., eds. *Fifth Annual Distinguished Lectures in Special Education.* Los Angeles, California, University of Southern California, 1967, p. 24-30.

Teaching experiments with deaf preschool children conducted by the Moscow Institute of Defectology aimed at approximating the language development of deaf preschoolers with that of hearing children by providing deaf children with a temporary device designed to accelerate the learning of full-fledged oral language. Experiments with finger spelling revealed that (1) it is easily accessible to children, teachers, and parents, (2) it can be used to initiate necessary early communication, and (3) it can serve as a catalyst

to change global images of word structure into exact, analytical sequences of phonemes. In a comparison of the pure oral and finger spelling methods, finger spelling resulted in a larger oral vocabulary, and in better concrete and abstract communication. Finger spelling proved to be a temporary key to analytical reading, accurate lipreading, and the development of intelligible speech and mechanical skills. The Soviet teachers used finger spelling as an incidental crutch to enable the intensive teaching of conversational speech and conceptualized grammatical speech and language. Analysis of the process of language learning by the deaf indicates that the first signal system is 1 of nonverbal communication which is rooted in sensory motor signals from the environment. These signals are based on sight, touch, kinesthesia, the other senses, and fragments of residual hearing. The second signal system consists of language and thought. The direct or indirect support of the first signal system is required if language is to grow in its analytical, integrative function. The synthesis of these 2 systems forms an effective language. (10 refs.) - *J. K. Wyatt.*

1925 HORTON, KATHRYN BARTH. Organic language disorders in children. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., Council for Exceptional Children, 1968, p. 87-105.

The childhood aphasias are caused by congenital or acquired cerebral dysfunction and characterized by linguistic and nonverbal manifestations. In language learning terms, the aphasias are disturbances of the central integrative system which are of major intersensory significance and are reflected in disorders in the retention, retrieval, and expression of verbal symbols. Aphasic disorders are consistently accompanied by disturbances of auditory processing. The assessment of aphasia should evaluate the integrity of the sense modalities both by defining the intactness of a specific sense modality functioning in relative isolation and by testing the level of intermodality functioning. A suggested sequence of levels of assessment for each sense modality, which proceeds from simple to complex functions, is sensation, attention, recognition, retention, discrimination, imagery, recognition of the verbal symbol, retrieval, and use of the verbal symbol. Since disorders of aphasia imply near normal levels of functioning in nonverbal areas, the intellectual assessment of children with organic language disorders should provide a comparison of verbal and nonverbal abilities. Aphasic children often present a multiplicity of problems and frequently have some degree of MR. They may also evidence a lack of behavioral integrity, particularly when there is a greater impairment in the auditory functions than in the visual functions. There are 2 opposing philosophies in the remediation of language disorders in children. One takes the position that therapeutic and remedial procedures should strengthen weaknesses and strive toward the achievement of equivalent levels of ability for all behavior related to the acquisition of language; the other thinks that the procedures should utilize the more intact channels of learning and capitalize on assets and strengths important to the learning of language. (13 refs.) - *J. K. Wyatt.*

1926 ROBERTS, THOMAS GENE. An investigation of language abilities and their relation to school achievement in educable mentally retarded children. *Dissertation Abstracts,* 28A(8):3037, 1968.

The language abilities of 4 groups of EMR children (CA range 9 to 14 yrs) equated for CA, MA, and IQ were investigated with respect to sex and race and the relationship between language and school achievement. Results showed that: specific language strengths were at the representational level of the Illinois Test of Psycholinguistic Abilities (ITPA); specific language weaknesses were at the automatic-sequential level of the ITPA; the receptive, expressive, and total language abilities of males were superior; and the relationship between language and the achievement variables was positive. Comparisons were based on ITPA and California Achievement Tests scores. Interaction effects between sex and race were not significant. White Ss had significantly higher scores than Negro Ss on the Auditory Decoding and Auditory-Vocal Automatic subtests of the ITPA. Male Negroes evidenced the most consistent pattern of relationships, and white male Ss had the most inconsistent pattern. (No refs.) - *K. Janet.*

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1927 PRABHU, G. G. Speech problems of the mentally retarded. *Indian Journal of Mental Retardation,* 1(2):87-94, 1968.

To determine the prevalence and type of speech defects among the MR of India and the correlation of these to the type and degree of mental impairment, 320 MR children (CA 3 to 13 yrs) were evaluated over a period of

2 1/2 years. The sample was obtained from hospital populations and hearing deficit was not taken into consideration. Forty-three percent had IQs <50. Psychometric testing was administered and speech evaluated for voice, rhythm, and articulation defects. Speech impairments were found in 44.7% of the total group with 2/3 of these being SMR. The incidence of speech defects among males and females was essentially the same. On the basis of the causative factors, Ss were classified into 3 groups: primary, secondary, and undifferentiated. Speech defects were more prevalent among the secondary group which consisted of SMR children and those with CNS damage. Articulatory defects were the most common impairment; voice and rhythm the least. Speech therapy can enhance the habilitation of the MR by developing language usage for communication in their everyday life situations. (14 refs.) - *S. Half.*

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1928 TROMBLY, THELMA. Linguistic concepts and the cerebral palsied child. *Cerebral Palsy Journal,* 29(2):7-8, 1968.

If the cerebral palsied (CP) child is to learn language, he must have opportunities for varied experiences, for chances to become acquainted with the objects in his environment, and for much social contact on a verbal level. Often the CP child is over-protected and is not encouraged to learn to do things for himself. Parents of a CP child should talk to him during infancy in spite of any lack of evident awareness. They should provide stimulation by bringing attractive objects within the child's range, by encouraging the child to manipulate objects, and by describing objects in simple appropriate language. The initial period of stimulation should be extended until speech begins. Other experiences essential to language development include opportunities to enlarge the environment, social contact with children who are learning language normally, and the expansion of incomplete utterances by parents. Speech limitations should not be permitted to interfere with the development of language. Early articulation errors should not be criticized. Speech therapy can be provided after a solid foundation of language has been acquired. (No refs.) - *K. Janet.*

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1929 GELHART, ROBERT PRESTON. Auditory discrimination in the educable mentally retarded. *Dissertation Abstracts,* 29A(3): 833, 1968.

To determine whether the Wepman Auditory Discrimination Test (WADT) confounds decoding and discrimination abilities, 50 EMRs were administered the WADT, the auditory decoding subtest of the Illinois Test of Psycholinquistic Abilities, and a multi-nonsense-syllable test. Analysis indicated that data obtained from the WADT should be interpreted as a confoundment of decoding and discrimination abilities. (No refs.) - *A. Huffer.*

No address

1930 DERBYSHIRE, A. J. The philosophy behind audiometry in infants. *Eye, Ear, Nose and Throat Monthly,* 47(9):405-407, 1968.

Solutions to problems encountered in the audiometric assessment of infants require a careful consideration of philosophical questions concerned with (1) what constitutes acceptable evidence that hearing has taken place, and (2) how does an observer know that this evidence has actually occurred. Response to sound is accompanied by many changes in the ear, nervous system, soma and viscera. Measurement of changes in these areas provides information concerning specific aspects of the total auditory process. The test chosen by the evaluator will depend on the information he wishes to obtain about the whole hearing to verbal language mechanism. The resolution of the second question depends on the application of statistical procedures including tests for the significance of the relationship between a stimulus and a response. It is hoped that from the multitude of audiometric tests for infants now being produced, a battery which will satisfy both questions presented above will be forthcoming. (10 refs.) - *E. R. Bozymski.*

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Mental Processes and Psychodiagnostics

1931 VERGASON, GLENN A. Facilitation of memory in the reatrdate. *Exceptional Children*, 34(8):589-594, 1968.

Research in learning and retention indicates that the memory of the MR child can be improved by pretraining, motivation, mediation (word-association), teacher usage of attention holding audiovisual equipment, and clear frequent repetition of instructions. When materials are meaningful and overlearned, MRs demonstrate long-term memory equal to that of "normal" and "superior" children. (42 refs.) *C. Rowan.*

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1932 KORST, JOSEPH W., & IRWIN, ORVIS C. Immediate memory span of mentally retarded children. *Cerebral Palsy Journal*, 29(3):10-11, 1968.

Comparisons of scores on an immediate memory span test obtained by MR children without cerebral palsy (CP), MR children with CP, and normal elementary school children revealed that the means of MR Ss evidenced a significant increase as a function of both CA and MA and the means of normal Ss were about twice as large as those of the MRs. The IQs of all MR Ss were 75 or below. The data were analyzed according to CAs and MAs. The CAs of 1 group of 277 MR children ranged from 6 to 16 years. The MAs of another group of 257 MRs ranged from 2 to 9 years. There were 523 normal children in the control group. An immediate memory span test was composed of the Wet Fall, Digit Span, and Lost Boy tests. The derived immediate memory span score was the total scored on the 3 subtests. MA curves for non-CP MRs and CP MRs were non-linear. Immediate memory span seemed to develop slowly between the MAs of 2 and 3 years, undergo a sudden spurt between 4 and 7 years, and then proceed slowly again between 8 and 9 years. Intensive memory training may be warranted during the period of spurt. (3 refs.) - *S. Half.*

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1933 WHITE, GERALDINE McCARTHY. The effect of type of reward on learning in educable mentally retarded pupils. *Dissertation Abstracts*, 28A(7):2607, 1968.

A study of the effects of different types of rewards on the symbolic language of 16 EMR pupils disclosed that there were no significant differences in the number of correct responses among the reward conditions or between the reward conditions and the no-reward condition. Ss were selected from classes of elementary EMRs on the basis of similar CAs. Four different learning tasks were presented under 4 different reward conditions--social, candy, a buzzer sound, and no reward. In actuality, the no-reward condition appeared to be a reward condition. This was due to the effects of selection for participation in the study, the novelty of the teaching apparatus, and the programing of the task. No significant differences were found in task difficulty or among the training days. (No refs.) - *K. Janet.*

No address

1934 SMITH, RUTH ELLEN. An application of a two-stage "attention" model to concept formation in the mentally retarded. *Dissertation Abstracts*, 28B(7):3069, 1968.

When a 2-stage model in which the attention stage was manipulated was applied to concept learning in MRs, the differences in the number of trials to criterion and total errors

among 3 treatment conditions were not significant. Ss were 13- to 38-year-old institutionalized MRs whose MA scores ranged from 4 to 10 years. The experimental conditions were a form matching task, exposure to form matching materials but no matching training, and matching training on materials in which form was irrelevant. (No refs.) - *K. Janet.*

No address

1935 WARD, MICHAEL P., & FLAMER, GEORGE B. A comparison of normal and mentally retarded children on intentional and incidental learning. *IMRID Papers and Reports,* 4(11): 1-39, 1967.

The hypothesis that due to their distractibility and lack of motivation, MR children will learn more extrinsic, task-irrelevant, material than normals was not supported by the results of 2 experiments. The performance of 44 MR students in regular classes and 44 normal Ss, matched on CA was compared on 2 types of incidental learning tasks--intrinsic, task-relevant and extrinsic, task-irrelevant. The Ss were instructed to remember either the color or the name of the object in each of 9 pictures of common objects. If the S was instructed to remember the color (intentional learning task), then recall of the object served as the test of incidental learning and vice versa. Twelve pictures hanging in the testing room served as stimuli for the extrinsic learning task. Since both groups did poorly on the extrinsic learning task, it may be that this particular task is a poor measure of distractibility. A repetition of this experiment with EMR Ss in special classes also failed to support the prediction that MRs would perform better than normals on the extrinsic learning task. (28 refs.) - *A. W. Jordan.*

1936 ACHENBACH, THOMAS, & ZIGLER, EDWARD. Cue-learning and problem-learning strategies in normal and retarded children. *Child Development,* 39(3):827-848, 1968.

A distinction between 2 degrees of reliance upon situational cues in problem solving is proposed. The distinction is formulated in terms of 2 contrasting learning strategies: the cue-learning strategy, which involves heavy reliance upon situational cues; and the problem-learning strategy, which involves active attempts to educe abstract relationships among problem elements. Experiment I demonstrated that retardates could learn a 3-choice relative-size discrimination as quickly as normals of the same MA. However, when an obvious but somewhat misleading cue was provided, retardates relied on the cue significantly longer than normals. Noninstitutionalized retardates relied on the cue significantly longer than institutionalized retardates. Experiment II replicated the results of Experiment I and also demonstrated that reliance on the cue by retardates involved an inhibition of learning rather than caution in reponding. Tentative evidence was found that persistent success experiences and reinforcement for independent thought could lead retardates to give up reliance on the cue as quickly as normals of the same MA. Experiment III showed that there was a significant correlation between imitativeness and cue learning in retardates but not in normals. (8 refs.) - *Journal abstract.*

Yale University
333 Cedar Street
New Haven, Connecticut 06510

1937 BAUMEISTER, ALFRED A., & BERRY, FRANKLIN M. Context stimuli in verbal paired-associate learning by normal children and retardates. *Psychological Record,* 18(2): 185-190, 1968.

The effects of context cues on acquisition of verbal paired-associates were investigated in relation to meaningfulness of the primary stimuli with normal children and MRs. Stimulus items were either words or CVC trigrams, responses were numbers, and context stimuli were colors. The major findings were: the context stimuli facilitated learning of low association trigrams but not of more meaningful words in normal children; and the performance of the retardates was unaffected by the addition of context cues. It was concluded that normal children attend to and select the most meaningful component of compound stimuli. Retardates did not utilize context cues as effectively. (9 refs.) *Journal abstract.*

University of Alabama
University
Alabama 35401

1938 McLAUGHLIN, JOHN MILTON, JR. The effect of different sensory modes of presentation on the short term retention of retarded children. *Dissertation Abstracts*, 29A(1):151-152, 1968.

Performance of 56 institutionalized TMR and EMR Ss on immediate recall tasks did not vary significantly regardless of whether the material was presented to the visual, auditory, and tactile sensory modalities or to their bimodal and trimodal combinations. The relative merit of presentations from the most to the least efficient appeared to be (1) visual and audiovisual, (2) visuotactile and auditory-visual-tactile, (3) audiotactile, (4) auditory, and (5) tactile. (No refs.)
A. Huffer.

No address

1939 BIJOU, SIDNEY W. Behavior modification in the mentally retarded: Application of operant conditioning principles. *Pediatric Clinics of North America*, 15(4):969-1988, 1968.

Features of behavioral modification are: a specified objective; identifying a set of reinforcers that are effective for the MR child; and outlining steps which are progressive to the desired end. It is the application of learning theory to the treatment of problem behavior. The opportunities for the MR to develop normal behavior may be restricted by virtue of his anatomy, physiology, and interactions with people and his environment. Impairment in reacting and coordinating systems, as well as unpleasant physical appearance, may curtail his opportunites for social and physical stimulation. Defective reinforcement retards the development of normal behavioral responses, and may lead to MR. Infantilization, unfriendly and unstimulating people, and physically and culturally undesirable features of the environment may all forestall normal behavioral development. The technique of aversive stimulation may have long lasting suppressive effects; however, it can lead to similar frightening situations, or evoke gastrointestinal malfunctions that interfere with normal performance. A child's performance and progress should be analyzed daily and the training program modified accordingly. (23 refs.) - *L. E. Clark.*

Department of Psychology
University of Illinois
Urbana, Illinois

1940 LOVITT, THOMAS C. Operant preference of retarded and normal males for rate of narration. *Psychological Record*, 18(2): 205-214, 1968.

This study investigated the listening rate preferences of retarded and normal boys. A story was recorded at the 180 wpm rate and modified by a speech compressor-expander mechanism to obtain additional rates of 90, 120, 240, and 360 wpm. These rates were paired throughout several sessions and simultaneously offered to each S. By programing these stimuli by conjugate reinforcement, the investigator was able to obtain continuous data relevant to each S's preference for a particular speed of speech. The results disclosed that of the normal boys, 5 preferred the 180 (normal) wpm rate, 3 the 240 wpm rate, and 1 the 120 wpm rate. Of the retarded boys, 1 chose the 360 wpm rate, 3 the 240 wpm rate, 2 the 120 wpm rate, and 3 the 90 wpm rate, all rejecting the normal speech rate. Data from 1 retarded and 1 normal boy were inconclusive in so far as establishing a specific preference. (10 refs.) - *Journal abstract.*

University of Washington
Seattle, Washington 98105

1941 RAY, EDWARD T. The use of operant conditioning with disturbed adolescent retarded boys. Paper presented at the 20th Mental Hospital Institute, Washington, D. C., October 2, 1968. 7 p., Mimeographed.

The use of a token economy in the operant conditioning of mildly MR institutionalized adolescent boys improves previously inadequate basic self-care skills and helps to eliminate individual behavior problems. Acceptable functional behavior is rewarded and inappropriate behavior results in fines and deprivations. Metal coins provide an unlimited supply of rewards tailored to individual activity and given immediately for good behavior. Patients may spend as they desire for a large variety of goods and services. Standards are individually tailored so that rewards are within the grasp of every patient. The program is apparently inappropriate for psychotic patients or those with multiple behavior problems of high frequency and it has proved impractical to generalize this process of motivation and learning beyond the ward setting; however, greater responsibility on the part of the psychiatric technician and the patient himself has aided

in the rehabilitation of a patient group previously destined for life-time institutionalization. (No refs.) - *E. L. Rowan.*

Porterville State Hospital
Porterville, California 93258

1942 SHELTON, JAMES T. The use of operant conditioning with disturbed adolescent retarded boys. Paper presented at the 20th Mental Hospital Institute, Washington, D. C., October 2, 1968. 7 p. Mimeographed.

Operant conditioning which emphasized programed reinforcements and featured a token economy, environmental manipulation, and a therapeutic community were used successfully in the treatment of mildly retarded (IQ 40-70) young men (CA 13-24) whose asocial behavior was a result of their never having learned appropriate, socially acceptable responses to environmental stimuli. A maximum of 42 boys lived together on a special unit where good eating habits and personal hygiene were emphasized. Although operant conditioning emphasizes positive reinforcement, some aversive stimuli, such as loss of privileges and removal from peer association were necessary. The development of a staff of psychiatric technicians skilled in treatment and program planning was an essential part of this project. (No refs.) - *E. L. Rowan.*

Porterville State Hospital
Porterville, California 93258

1943 RICE. HAROLD K. Operant behavior in vegetative patients III: Methodological considerations. *Psychological Record,* 18(3): 297-302, 1968.

Since the operant behavior of vegetative patients deviates considerably from that of normal organisms, highly individualized flexible procedures which emphasize the unique characteristics of the individual patient may be needed in this area. Several studies show that the performance of vegetative patients in response to operant conditioning techniques in variable and may show wide day-to-day fluctuations. The multiple physical defects of vegetative patients and the difficulty encountered in locating adequate reinforcers for them are problems which must be considered when operant techniques are used. Rigid adherence to a preconceived experimental design and procedure may result in failure to learn valuable information about vegetative patients. Although a flexible "impure" experimental approach may be difficult to analyze statistically, the focus should be on the individual patient and not on how he may compare with other individuals or on his relationship to the universe. (7 refs.) *E. R. Bozymski.*

Gracewood State School and Hospital
Gracewood, Georgia 30812

1944 SEN, A. K., & SEN, ANIMA. A test of the McCrary-Hunter hypothesis in mentally retarded subjects. *Journal of Mental Deficiency Research,* 12(1):36-46, 1968.

There was no significant difference between the serial position learning curves of 8 subnormals (CA 16 to 33 yrs; mean MA 9 yrs 9 mos) and 8 severely subnormals (CA 16 to 35 yrs; mean MA 5 yrs 5 mos) when the McCrary-Hunter method of plotting data was employed. Nor was there any difference between the performance of subnormals who learned under the condition of auditory distraction (CA 17 to 32 yrs; mean MA 9 yrs 2 mos) and a control group of subnormals (CA 18 to 33 yrs; mean MA 9 yrs 1 mo). The McCrary-Hunter hypothesis that serial position learning curves are invariant under widely varying conditions of learning was supported. More traditional methods of measuring performance on a serial learning task (mean number of errors or trials to criterion) did not yield data which supported the invariance hypothesis. In both experiments the serial anticipation method was used to present 8 pictures of common objects. The criterion of learning was 8 successive correct reproductions of the list. (16 refs.) - *A. W. Jordan.*

Department of Psychology
University of Hull
Hull, England

1945 WOODWARD, W. MARY. Use of Piaget's developmental psychology in mental retardation. *Developmental Medicine and Child Neurology,* 10(5):666-667, 1968. (Annotation)

Since Piaget's theory of an orderly progression through the stages of cognitive development stresses the order, rather than the age of attainment, it is thought by some, to be of greater value than IQ test scores in determining degree of subnormality. Methods

and material following the child's development (in the light of Piaget's findings) may accelerate cognitive development of the MR. (3 refs.) - *E. F. MacGregor.*

University College of Swansea
Singleton Park, Swansea, Wales

1946 GROSS, MORRIS. *Learning Readiness in Two Jewish Groups: A Study in "Cultural Deprivation."* New York, New York, Center for Urban Education, 1967, 41 p. $0.25.

A study of the learning readiness of comparable groups of 5- and 6-year-old American Sephardic-Ashkenazic Jewish children suggests that understanding of the academic achievement process requires knowledge about variables beyond those of class, ethnicity, and cultural deprivation. The S-B, Columbia Mental Maturity Scale, PPVT, and Bender Visual-Motor tests were used to evaluate the cognitive abilities of the Ss and the children's mothers provided background information by completing Winterbottom's "independent training" questionnaires, Medinnus' Attitude Toward Education Scale and a data sheet which included questions about planned level of education and desired level of income for their children. All Ss and their mothers were middle class and native born, and resided in tradition-conscious, English speaking homes in the same general neighborhood. Cognitive data analyses revealed a 17-point difference between the groups in PPVT scores. Ashkenazic Ss scored significantly higher on all cognitive measures, and were much better prepared for the cognitive demands of school than were Sephardic Ss. Although the Sephardim in this study were not deprived, their level of academic readiness was similar to that of underprivileged Israeli Sephardic chidren. Analysis of the questionnaire data revealed between group differences in mother's attitudes toward male and female socialization and in levels of expected income, that independence training was accentuated in Ashkenazic homes, and that both groups of mothers expressed a high level of achievement motivation for their children. Differences between the 2 groups may be due to the effects of deeply embedded differential value systems. (35 refs.) - *J. K. Wyatt.*

1947 RIEBER, MORTON, & WOMACK, MARCELEETE. The intelligence of preschool children as related to ethnic and demographic variables. *Exceptional Children,* 34(8):609-614, 1968.

The Peabody Picture Vocabulary Test (PPVT) scores of 509 Latin-American, Negro, and Anglo preschool children were related to ethnic and demographic data elicited from their parents by questionnaires. Although all scores showed retarded intellectual development (IQ <85), significant characteristics such as higher annual family income, maternal employment and higher education, and smaller family size had a positive influence on intelligence. The concept of ethnic influence on innate intelligence, supported by the higher average IQ score of the Anglo group, is questionable since the 3 groups gained equally in average MA after 5 weeks of Head-start stimulation. (10 refs.) - *C. Rowan.*

Department of Psychology
University of Western Ontario
London, Ontario, Canada

1948 ALLEN, ROBERT M., & ALLEN, SUE P. *Intellectual Evaluation of the Mentally Retarded Child: A Handbook.* Beverly Hills, California, Western Psychological Services, 1967, 67 p. $7.50.

Psychological and educational tests used for the evaluation of the intellectual performance of an MR child should provide information about the child's assets and liabilities which will enhance vocational and/or educational planning. Katz's Survey of Degree of Physical Handicap may be used for the preliminary assessment of, and as a guide to appropriate test selection for MRs who have sensory and/or motor impairments which interfere with their satisfactory performance on standard tests. Standard individual and group intelligence tests employed most often for the evaluation of MRs in 124 state residential facilities include the Revised Stanford-Binet Scale, the Wechsler Intelligence Scale for Children, the Wechsler Adult Intelligence Scale, the Cattell Infant Intelligence Scale, Wechsler-Bellevue Intelligence Scale, the Otis Self-Administering Tests, and the SRA Primary Mental Abilities. Frequently used individual performance tests and picture vocabulary tests are the Arthur Point Scale, the Leiter International Performance Scale, The Columbia Mental Maturity Scale, The Merrill-Palmer Scale, the Rowens Progressive Matrices, the Peabody Picture Vocabulary test and the Full-Range Picture Vocabulary Test. Special tests which may be used to evaluate

the degree of development of basic processes essential to the comprehension and solution of problems are the Frostig Test and the Illinois Test of Psycholinguistic Abilities. Third person tests which may be used to obtain information about a child that cannot be obtained by direct examination include the Gesell Preliminary Behavior Inventory, the Cain-Levine Social Competency Scale, the Vineland Social Maturity Scale, and the Slosson Intelligence Test. A psycholgist's report should contain vital data, a description of the testee, the reason for referral, a list of the tests administered, descriptions of any unusual circumstances, and the child's reaction to the testing situation, a discussion of the test findings which focuses on behavioral events rather than on specific numerical data, a comparison of present test findings with earlier data (if available),the examiner's impressions of the child, and the examiner's suggestions and/or recommendations. This book should be interest to psychologists and educators concerned with the evaluation of MR children or adults. (115-item bibliog.) *J. K. Wyatt.*

CONTENTS: Mental Retardation: Identification; Testing for Intelligence; Standard Tests of Intelligence; Standard Tests of Intelligence: The Wechsler Scales, Wechsler Adult Intelligence Scale (WAIS); Tests for Pre-schoolers; Picture Vocabulary Tests; Formboards; The Drawing Tests; Non-Verbal Intelligence Tests; Psychometric (Paper-and-Pencil) Tests of Intelligence; Special Tests of Perceptual and Psycholinguistic Abilities; The Blind; Third Person Tests; and The Psychologist's Report.

1949 WARREN, SUE ALLEN. Psychological evaluation of the mentally retarded: A review of techniques. *Pediatric Clinics of North America,* 15(4):943-956, 1968.

Psychometric testing and interpretation is instrumental in: identifying MR and its severity; planning programs; and evaluating the effectiveness of the programs. The Stanford-Binet and Wechsler scales provide standard scores expressed in terms of the child's performance compared to that of others his age. Frequently employed tests of psychological function used in evaluating children with learning problems are presented. On a clinic basis, the Wide Range Achievement Test is commonly used. Social Adaptability is best measured by the Vineland Social Maturity Scale. A tabulation of tests used in evaluating special perceptual difficulties is presented. Clinical judgments should be the result of an intake of information from many sources, medical evaluations, lab tests, educational information, academic achievements, and evaluations of personality. Observation of the infant and child less than 6 years of age by a professional familiar with normal development is the best index for establishing the need for further testing. A list of danger signs of behavior suggestive of MR is presented. Licensed, certified, or diplomate-status psychologists should be consulted. State directories or the Annual Directory of the American Psychological Association are sources of qualified people. Psychological reports should be concise, accurate, in clear language, comprehensive, and meaningful to the physician. (37 refs.) - *L. E. Clark.*

1640 West Roosevelt Road
Chicago, Illinois

1950 REED, HOMER B. C., JR. The use of psychological tests in diagnosing brain damage in school children. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., Council for Exceptional Children, 1968, p. 109-127.

The results of 3 studies in which the effects of brain lesions were routinely apparent on psychological tests demonstrate the validity of the administration of a battery of psychological tests for the assessment of brain dysfunction in school age children. The battery of tests includes the Wechsler-Bellevue, the Halstead Finger Oscillation Test, the Halstead Time Sense Test, the Seashore Rhythm Test, modified versions of the Trail Making Test, modifications of 3 of the test procedures of the Halstead Battery of Neuropsychological Tests, the Dynamometer Test, the Wide Range Achievement Test, the Aphasia Screening Test, a series of sensory perceptual tests, a drawing test to determine constructional dyspraxia, and the WISC. Specific study findings are: that the performance of brain damaged children was significantly below that of their matched controls on all tests; language function tests revealed greater differences between brain damaged Ss and control Ss than other testing procedures; age of onset and chronicity of brain dysfunction were important determinants of the Ss deficit patterns; and Ss suspected of having brain lesions were as severely impaired on measures of language ability as Ss known to have brain lesions, but fell between brain damaged and normal control Ss on measures of many nonlanguage abilities. The utility of the tests for understanding the effects of a brain lesion on individual intellectual development has been demonstrated by experience with hundreds of cases in which test

evidence has been routinely successful in identifying the presence of brain lesions, their nature, and their effects on the patient's intellectual development. (5 refs.) *J. K. Wyatt.*

1951 L'ABATE, LUCIANO. Screening children with cerebral dysfunctions through the laboratory method. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., The Council for Exceptional Children, 1968, p. 128-158.

Major aspects of developmental functioning evaluated by laboratory screening methods for children with cerebral dysfunctions are: verbal and symbolic functioning; visual motor performance; learning deficits and academic achievements; and emotional, psychosexual and interpersonal adjustment. Each child is administered a standard test battery designed for his age level as well as a minimum of 2 tests for each of the 4 aspects of functioning. Analytical tests which may be used in a diagnostic battery include the Frostig Developmental Test of Visual Perception, the Illinois Test of Psycholinguistic Abilities, the Minnesota Percepto-Diagnostic Test, Draw-A-Person Test, Hidden Figures Test, Wechsler Intelligence Scale for Children, Figure Reproduction Tests, Raven's Progressive Matrices, and Archimedes Spiral and Trail Making tests. A global approach to the interpretation of test battery results is based on analysis of the major input channels of receptions and the major output channels of expressions. In the normal child reception is superior to expression and a disturbance in the relationship between reception and expression may be indicative of dysfunction. Analyses of test result patterns are used to differentiate dysfunctions due to MR, borderline intellectual functioning, emotional disturbance, and cerebral lesions. The laboratory method of evaluation utilizes specially trained subprofessional personnel to administer and score standard test batteries. A clinical psychologist is responsible for the supervision of subprofessional assistants, and for test result interpretation, report writing, and consultations. This differentiation, between technical and professional skills and responsibilities reduces the cost of psychodiagnostic evaluation, increases the efficiency of the clinical psychologist, and links service and research functions. (41 refs.) - *J. K. Wyatt.*

1952 Using speed of brain waves to test IQ. *Medical World News,* 9(10):26, 1968.

A device which measures the speed of brain wave responses to light was tested on 300 children (170 males; 130 females) to determine basic "neurological efficiency." Unlike written or oral intelligence tests which are affected by environmental and educational factors, the results achieved by use of the electroencephalographic device are not influenced by the S's age, sex, or intellectual development. Follow-up studies are planned for the 300 Ss in order to affirm test reliability. (No refs.) - *J. P. West.*

1953 DE RENZI, ENNIO, FAGLIONI, PIETRO, & SCOTTI, GIUSEPPE. Tactile spatial impairment and unilateral cerebral damage. *Journal of Nervous and Mental Disease,* 146(6): 468-475, 1968.

An analysis of the performance of unilateral brain-damaged patients on a tactically guided task indicates that there is a clear-cut relationship between performance on a form-board task and the locus of a cerebral lesion. Ss were 44 brain-damaged patients with damage restricted to the right hemisphere, 36 brain-damaged patients with damage restricted to the left hemisphere, and a control group of 60 normal, right-handed Ss. Brain lesion diagnoses were based on neurological symptoms and on neuroradiological and EEG data. Brain-damaged Ss were subdivided according to the presence or absence of visual field defects. Testing procedures included a screening test of tactile-visual matching, a preliminary form-board test, a form-board test, a block arrangement test, a language test, and a visual reaction times test. The form-board test was performed 5 times with the board ipsilateral to the injured hemisphere. Ss were blindfolded. The performance of brain-damaged Ss with right hemispheric lesions and visual field defects was signficantly inferior to the other groups. A decrease in function after a brain lesion did not appear to equal a deficiency in the ability to improve through learning. The rate of learning over the 5 trials of the form-board test was not different for the different brain-damaged groups. All brain-damaged Ss evidenced a highly significant improvement between the first and second trials. Although block arrangement test data showed that Ss with

visual field defects had lower scores, right-sided Ss did not evidence a poorer performance than left-sided Ss. Topographical memory does not appear to be a major variable in form-board learning. (17 refs.) - *B. Bradley.*

University of Milan
Milan, Italy

1954 SMITH, W. LYNN, PHILIPPUS, M. J., & GUARD, H. L. Psychometric study of children with learning problems and 14-6 positive spike EEG patterns, treated with ethosuximide (Zarontin) and placebo. *Archives of Disease in Childhood,* 43(231):616-619, 1968.

Ten children (CA range 8-14 yrs) referred for neuropsychological evaluation because of learning and management problems and a 14- and 6-cycle/second positive spike pattern on EEG were treated with ethosuximide and a placebo on a double-blind cross-over basis and were evaluated in terms of intelligence, perception, and personality change. Verbal and full scale intelligence scores (Wechsler) were significantly higher while the patients were on medication than when they were on placebo. Perception (Raven's progressive matrices) and personality (Rorschach) scores were unchanged. Ethosuximide, apparently has a rather specific enhancing influence on verbal cognitive functions localized in the left hemisphere of the brain. (8 refs.)
E. L. Rowan.

Cortical Function Laboratory
Porter Memorial Hospital
2525 South Downing
Denver, Colorado 80210

1955 SHIPE, DOROTHY, VANDENBERG, STEVEN, & WILLIAMS, R. D. BROOKE. Neonatal Apgar ratings as related to intelligence and behavior in preschool children. *Child Development,* 39(3):861-866, 1968.

Thirty-three preschool children who had low Apgar scores (5 or below) at birth and matched controls were evaluated at the age of 30 months with the Pacific Multifactor Test battery, at which time social data were obtained. Six months later the Stanford-Binet, L-M, and a Parent Questionnaire were administered to 24 pairs of Ss and their parents, respectively. Low Apgar scores at birth were not related to later performance on psychometric tests or personality ratings. (8 refs.)
Journal summary.

Department of Applied Psychology
Ontario Institute for Studies
in Education
Toronto 6, Ontario, Canada

1956 WERNER, EMMY E., HONZIK, MARJORIE P., & SMITH, RUTH S. Prediction of intelligence and achievement at ten years from twenty months pediatric and psychologic examinations. *Child Development,* 39(4):1063-1075, 1968.

The usefulness of psychological and pediatric appraisals of intelligence at 20 months in forecasting ability and achievement level at 10 years was explored for a time sample of 639 full-term children. The Cattell IQ was the best single predictor of IQ (r=.49) and achievement (r=.44) at age 10. A combination of Cattell IQ, pediatrician's rating, social quotient, perinatal-stress score, and parental socioeconomic status (SES) yielded a multiple R of .58 with 10-year IQ, with most of the added predictive power contributed by parental SES. For children with Cattell IQs below 80, a combination of infant-test scores and pediatricians' ratings of intelligence yielded a multiple R of .80 with 10-year IQ. The majority of children scoring low on the Cattell or the pediatricians' ratings of intelligence at 20 months had serious school-achievement problems at 10. (16 refs.)
Journal summary.

Department of Applied Behavioral Sciences
University of California
Davis, California 95616

1957 RICE, JAMES A. Form equivalence of the revised Visual Retention Test in mental retardates: An extension. *Journal of Psychology,* 68(1):159-163, 1968.

Although significant differences are found among forms C, D, and E on the Benton Visual Retention Test (VRT) when used with normal children, there are no significant differences when the forms are used with EMRs. The A x B design was used to determine interaction between test form and order of presentation--copying first or memory first, difference between results on Forms C, D, and E, and difference due to order of administration.

Seventy-two EMRs, matched for CA and MA were given 2 tasks: in 1 instance, direct copying of geometric line figures was required, and in the other, drawing from memory after 10 second exposure was required. No interaction between order of administration and form was found. No significant differences between Forms C, D, and E were obtained. No significant difference between orders of presentation (memory first versus copying first) were found. The VRT may be assumed to consist of 3 parallel forms when used with EMRs. (3 refs.) - *E. R. Bozymski.*

University of Houston
Houston, Texas 77004

1958 SILVERSTEIN, A. B. WPPSI IQs for the mentally retarded. *American Journal of Mental Deficiency*, 73(3):446, 1968.

An extension of the table for Wechsler Preschool and Primary Scale of Intelligence is given with IQ scores extrapolated for sums of scaled scores down to 10. Raw scores greater than 0 on at least 2 verbal and 2 performance subtests are necessary for the practical use of this table. (3 refs.) - *E. F. MacGregor.*

Box 100
Pomona, California

1959 MALIN, A. J. Adaptation of the Wechsler Intelligence Scale for Indian Children. *Journal of Rehabilitation in Asia*, 9(4):19-20, 1968.

The Wechsler Intelligence Scale for Children was radically revised and renamed the Intelligence Scale for Indian Children (ISIC) to provide a suitable individual factorial test for children in India where the test is used for rehabilitation and vocational guidance purposes. (11 refs.) - *B. Parker.*

Nagpur Child Guidance Centre
Nagpur, India

1960 McKERRACHER, D. W., WATSON, R. A., LITTLE, A. J., & WINTER, K. S. Validation of a short form estimation of W.A.I.S. in subnormal and psychopathic patients. *Journal of Mental Subnormality*, 14 (27,Part 2):96-97, 1968.

Wechsler Adult Intelligence Scale protocols of 341 patients of the Rampton Hospital were examined to determine the validity of using the Doppelt short form of the WAIS as an estimate of the full scale IQ. Data was calculated for each of the legal categories which included: mental illness; subnormality; severe subnormality; psychopathic disorder; and dual classification. The mean age was 28.75 years with a standard deviation of 9.28 years. Correlations for each group and for the total group ranged from +.931 to +.988 and were significant at the .01 level. Although the Doppelt estimations yielded significantly higher scores than the full scale WAIS, frequency distributions of deviation scores indicated that in 70 to 80% of cases, depending on age range and legal classification, the Doppelt IQ was within ±5 IQ points of the WAIS full scale IQ. The Doppelt method, as a screening device for determining intellectual functioning in subnormal patients, is reasonable. Further investigation attempting to control for other possible variables may be revealing. (3 refs.) *E. R. Bozymski.*

Rampton Hospital
Retford, England

1961 McKERRACHER, D. W., & WATSON, R. A. The Eysenck Personality Inventory in male and female subnormal psychopaths in a special security hospital. *British Journal of Social and Clinical Psychology*, 7(4):295-302, 1968.

The Eysenck Personality Inventory was administered to a sample of 264 male and female subnormal psychopaths at a special security hospital. The males were not significantly different from the general population norms in neuroticism and extroversion. The females were significantly more neurotic than the males and the general population. Both sexes were higher than the normal range in the Lie scale, and male patients lied more than female patients about their behavior. The majority of female patients described themselves as neurotic extroverts, as hypothesized by Eysenck (1964). No similar trend was observed in the males. Lying was found to be correlated with intelligence in both sexes, and with age in males. "Liars" congregated mainly in the non-neurotic introvert quadrant and "truth-tellers" in the neurotic extrovert. The "absolute" meaning of these personality categories was considered to be obscured by (a) misinterpretation of the wording in some items, and (b) motivational distortion due to the circumstances of obtaining

test results from a criminal population interviewed for clinical rather than for research purposes. (20 refs.) - *Journal summary.*

Rampton Hospital
Retford, England

1962 WIMBERGER, HERBERT C., & GREGORY, ROBERT J. A behavior checklist for use in child psychiatry clinics. *Journal of the American Academy of Child Psychiatry*, 7(4): 677-688, 1968.

The Washington Symptoms Checklist (WSCL) was developed for administration to parents of emotionally disturbed children referred to a psychiatric clinic. The WSCL measures the frequency and degree of symptomatology and assesses motivation for treatment. Test-retest reliability of individual items and of the total WSCL score was very high as the correlation between parents' and therapists' ratings of the children. In practice, the checklist makes intake interviews more efficient as parents report more specifically and meaningfully about the behavior of their child and the therapist is attuned to special problems which might otherwise be overlooked. As a research tool the checklist may be useful in comparison of behavior over time, delineation of clusters of symptoms, description of normal children, and determination of parental importance in child dynamics. (8 refs.) - *E. L. Rowan.*

Department of Psychiatry
University of Washington
School of Medicine
Seattle, Washington 98105

1963 HALPERN, ANDREW S., MATHIEU, PHILIPPA L., & BUTLER, ALFRED J. Verbal expressivity as a client variable in counseling the mentally retarded. *Exceptional Children*, 34(9):693-701, 1968.

A scale measuring verbal expressivity was shown to differentiate among MR Ss and to provide different information from that obtained on intelligence and language tests. It did not differentiate among normals nor did it provide unique information. Portions of counseling interviews from 28 institutionalized MR Ss (CA 9-18; IQ 40-87) and 9 normals of comparable age served as the data for determination of the reliability and validity of the Verbal Expressivity Scale (VES). Interjudge (.85) and intrajudge (.68-.79) reliabilities of ratings on the VES were acceptable. The behavior measured by the VES occurred frequently enough for the scale to be useful with this population. Scores on the VES did not show significant change in the process of counseling, suggesting that the VES could be useful in selecting candidates or techniques for counseling the MR. (18 refs.) - *A. W. Jordan.*

Department of Counselor Education
State University of New York
Buffalo, New York

1964 BATEMAN, BARBARA D. *Interpretation of the 1961 Illinois Test of Psycholinguistic Abilities.* Seattle, Washington, Special Child Publications, 1968, 108 p. $3.00.

The Illinois Test of Psycholinguistic Abilities (ITPA) provides a frame of reference for the diagnosis and alleviation of psycholinguistic disabilities and identifies relevant behaviors for observation, facilitates their observation, and provides planning guidelines for their remedial modification. "Typical" ITPA profiles have been tentatively identified for MR children, public school kindergarten children, culturally disadvantaged children, children with articulation and language problems, visually handicapped children, CP children, the gifted, and children with reading disabilities. The outstanding features of "typical" profiles for MRs whose mean IQs are near or below 75 are: a deficit in the entire automatic-sequential level; a visual-motor sequential which is slightly higher than the auditory-vocal sequential; a slight deficit in auditory-vocal association at the representational level; and a slight preference for the visual-motor channel over the auditory-vocal channel. The basic deficit in automatic, habitual or rote aspects of language usage exhibited by MRs indicates that curriculum and teaching methods should be designed to provide opportunities for repetition, over-learning, and "mechanical" drill; and should not emphasize meaningful learning situations designed to strengthen already strong representational skills thereby neglecting the exercise needs of the automatic-sequential areas. Clinical experience with the ITPA indicates that many MR children have some association difficulties which are manifested in a general retrieval problem at both the representational and automatic-sequential levels. This monograph should be of interest to psychologists and educators. (19 refs.) - *J. K. Wyatt.*

CONTENTS: Preliminary Considerations; ITPA Profiles of Certain Groups of Children; The ITPA and Reading; Interpretation of Individual ITPA Profiles; and Handling ITPA Data.

1965 DORAZCO-VALDES, J. Estudio comparativo entre los aspectos clinicos, electroencefalograficos y la prueba del dibujo de la figura humana en el nino epileptico (Comparative study of clinical aspects, electroencephalographs and the draw-a-person test in the epileptic child). *Journal of the Neurological Sciences*, 6(2):373-380, 1968.

A longitudinal study of 19 epileptic children (CA 5 to 13 yrs; IQ from below 70 to above 120) investigated the correlation between clinical data, EEG abnormalities, and the Draw-A-Person Test (DAP). The low IQs correlated positively with specific abnormal EEGs (consistent bursts of slow and sharp waves or wave and spike discharges); in addition, the low IQ Ss had familial histories of central nervous system disorders. The EEG findings were somewhat different in patients without positive family histories. The DAP did not correlate with EEGs; however, the IQ determinations varied with the emotional state of the Ss. Although EEG abnormalities are frequent in epileptic children, the emotional state of these children must also be considered, especially in those Ss with slow and sharp wave or spike-and-wave EEG patterns. (18 refs.) - *K. Drossman.*

Departamento de Neuropsiquiatria
Facultad de Medicina
Universidad de Guadalajara, Jalisco
Mexico

1966 STERNLOF, R. E., PARKER, H. J., & McCOY, J. F. Relationships between the Goodenough DAM Test and the Columbia Mental Maturity Test for Negro and white Headstart children. *Perceptual and Motor Skills*, 27(2): 424-426, 1968.

The Columbia Mental Maturity Scale showed significantly lower intellectual functioning in deprived Negro children than in similarly deprived white children. Both Negro and white children scored significantly below their CAs on the Goodenough Draw-A-Man Test. No group differences were found on the Vineland Social Maturity Scale, and results were congruent with their CAs. Caution in the use of these tests with deprived children is suggested. (10 refs.) - *Journal abstract.*

University of Oklahoma Medical Center
Oklahoma City, Oklahoma 73104

1967 PHELPS, WILLIAM R. Further evidence on the Hain Scoring Method for the Bender-Gestalt Test. *Journal of Learning Disabilities*, 1(6):358-360, 1968.

The Bender-Gestalt test was administered to 76 mildly retarded females and scored with the Hain Method to indicate brain damage. Follow-up studies after 12 months indicated that of the original group, 49 Ss were rehabilitated and 40 were not. Thirty-seven percent of the rehabilitated group were considered brain damaged upon evaluation by this method while 39% of the non-rehabilitated group received critical scores. EEG studies showed 6 of the rehabilitated, and 4 of the non-rehabilitated group with abnormal tracings. Results should be viewed with caution as the original validation group differs in composition from the group in this study; however, this scoring method shows promise and should be further studied. (3 refs.) *M. Drossman.*

West Virginia Rehabilitation Center
Charleston, West Virginia

1968 PESCE, CHARLES T. A note on the reliability of the Children's Locus of Control Scale. *Training School Bulletin*, 65(3):84-86, 1968.

Results of a comparative study of the Children's Locus of Control Scale (CLCS) responses of EMR (mean IQ 63.7; mean CA 16.4 yrs) and normal (mean IQ 103.8) males raise questions about the validity and reliability of the scale when it is administered on an individual and oral basis. The reverse and the original forms of the CLCS were administered alternately and instructions and scale items were presented by pre-recorded tape to control differences in reading ability between groups. Results revealed that alternate forms did not elicit comparable responses to item content and the intercorrelation of the 2 forms was non-significant. (2 refs.) - *S. Half.*

Department of Research
Trenton State College
Bordentown, New Jersey

1969 STRUMPFER, D. J. W., & MIENIE, C. J. P. A validation of the Harris-Goodenough Test. *British Journal of Educational Psychology*, 38(Part 1):96-100, 1968.

Reliability and validity data for a human figure drawing test were obtained with 79

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white Ss (mean CA 11.44 yrs) in Africa. Odd-even and test-retest reliabilities were acceptably high. Significant but low correlations (range .22 to .61) were obtained between the Harris-Goodenough (HG) IQs and both individual and group intelligence test scores. The correlations between HG IQs and examination grades and teacher rankings were .48 and .46 respectively; however, individual and group intelligence test scores are better predictors of these criteria than HG IQs. Scores on a dexterity test, a personality questionnaire, and an arithmetic test showed little relationship to HG IQs. Despite the low validity coefficients, the HG is a useful clinical tool. (10 refs.) - *A. W. Jordan.*

University of Port Elizabeth
Port Elizabeth, South Africa

1970 KEOGH, BARBARA K. The copying ability of young children. *Educational Research*, 11(1):43-47, 1968.

The Bender-Gestalt and Draw-A-Person (DAP) Tests were administered to English school children (CA 5 to 9 yrs) to evaluate their performance and interpret young children's copying ability. A minimum of 30 boys and 30 girls were chosen at each age level. All Ss were English speaking, educationally normal children in good physical condition and were drawn from 6 schools in various parts of an industrial city. The tests were administered in groups of 8 to 14 Ss. The Bender-Gestalt Test (scored by Koppitz revised system) patterns were placed on large cards at the front of the room and the children were asked to copy them. The DAP test was scored by the revised Goodenough-Harris system. Differences in performance between boys and girls and among schools were found with the Bender-Gestalt test. A negative relationship was found between the 2 tests at each age--the magnitude of the correlation coefficient ranged from -.28 to -.47. Analysis of the B-G protocols in terms of characteristic errors revealed that primitization, perseveration, rotation, integration, and truncation decreased with age; however, over 50% of the Ss continued to make primitization and perseveration errors at age 9. Workover and erasure error increased with age. (7 refs.) *K. B. Brown.*

University of California
Los Angeles, California

TRAINING AND HABILITATION

Education

1971 JOHNSON, ORVILLE. Special education for the mentally retarded. *Pediatric Clinics of North America*, 15(4):1005-1016, 1968.

Education should prepare the MR child to use his potential in his unique situation and the educator should be an applied psychologist, who helps the child use his intelligence. The MRs are divided into 4 levels for educational purposes: SMR; TMR; EMR; and slow learners. Children who will need public school special education will be chiefly middle class because upper and lower class children are more often institutionalized; however, the incidence of slow learners is much higher in lower class children. Educators are concerned with functional intelligence, or how the child is currently performing. Program planning depends on: characteristics of the individual; future roles; and present environment. Almost all TMRs will be institutionalized by age 45; however, the home and neighborhood are the significant influences in their lives and in early childhood, a planned program for TMRs should show the child how to deal with his environment. In middle childhood, contribution activities should be added while in adolescence, the child should leave school with the ability to cope with his surroundings. The best training facilities for TMRs are special and separate facilities; also, operant conditioning is a very useful technique with TMRs.

Since the EMR can be socially and economically independent, programing should begin in early childhood for it does affect the rate of development. Middle childhood education should include the fundamentals--the 3 Rs, while preadolescent training should familiarize the EMR with the world of work. EMRs for the most part can be educated in the same schools as normal children. (3 refs.) *L. E. Clark.*

College of Education
Ohio State University
1945 North High Street
Columbus, Ohio

1972 JOYNT, ROBERT R. A comparison of educable mentally retarded pupils with regular class pupils of the Greeley, Colorado, public schools on decision making behavior. *Dissertation Abstracts,* 28A(8):2899, 1968.

A comparison of the decision-making behavior of 126 EMR special class pupils and 115 normal regular class pupils of the Greeley (Colorado) public schools indicated that EMRs exhibited more relative freedom from peer pressures in making decisions than regular class Ss. Each S participated in 10 line choice tasks under both ambiguous and non-ambiguous stimuli conditions. Findings on the totals of both stimuli conditions and on the non-ambiguous condition indicated that males tended to be less conforming than females, EMRs were less conforming than regular class Ss, judgment improved with age, and peer influence decreased with age. Findings for the ambiguous condition indicated that EMRs were less conforming, regular class males were less conforming than regular class females, female EMRs were less conforming than male EMRs, and age did not affect conformity. (No refs.) - *K. Janet.*

No address

1973 BARRINGTON, BYRON L. Special education students--How many are misplaced? *Journal of Learning Disabilities,* 1(12):726-729, 1968.

An examination of the current Wechsler Adult Intelligence Scale (WAIS) protocols of 12 males and 8 females (CA range 16-20 yrs) who had been officially placed in special education classes revealed that, at the time of their referral to the Wisconsin Rehabilitation Division, the intellectual functioning of 25% was above the limit set for special class placement. Seven Ss had either a verbal or performance scale IQ above 84, and 5 of these Ss had verbal, performance, and full scale IQs which were above 87. Five Ss with full scale IQs above 84 were male, and 4 of 5 Ss with scores above 85 had obvious emotional problems. The presence of marked subtest scores and verbal and performance IQ variations in several test records were suggestive of organic brain damage. Although the sample in this study may be biased because the Ss were all referrals to the Rehabilitation Division, the findings indicate that a significant number of individuals with ability levels in the average or above average range were placed in special education programs and treated as if they were MR. Modifications of special class placement procedures aimed at reducing placement errors include the establishment of annual regional institutes to evaluate students for special classes; the mandatory examination of test protocols and pertinent case information by a qualified clinical psychological consultant prior to special class placement; and the institution of a program of annual re-evaluation of students placed in special education programs. (2 refs.) - *K. Janet.*

518 South 7th Avenue
Wausau, Wisconsin 54401

1974 STAPLES, J. R. Some thoughts on the segregation of educationally subnormal pupils. *Remedial Education,* 2(2):11-15, 1967.

Special classes for the educationally subnormal (ESN) should be included within the general school system in order to produce a more favorable learning environment and augment public acceptance of the MR. Parents are dismayed and resistant to sending their children to "daft schools" and previous attendance may be a source of humiliation for the job-seeking adult. Although segregation eases the problem of organization and meets special needs of the multiply handicapped, the basic advantages of small class size, specially trained teachers, and individual programs tailored to student needs could optimally be carried into the normal school system. (4 refs.) - *C. Rowan.*

City of Coventry Child
Guidance Centre
Coventry, England

1975 GALLIEN, JOHN JOSEPH. The achievement discrepancy of educable mentally retarded as affected by the use of achievement test data. *Dissertation Abstracts.* 28A(8): 3070-3071, 1968.

Sixty EMRs from classes where teachers used achievement test results provided by the school system achieved significantly higher scores on all measures of the Metropolitan Achievement Tests than 60 EMRs from a school system that did not have an achievement testing program. Criteria used in the selection of Ss included: IQ between 60 and 69; MA between 72 and 126 months; CA between 100 and 148 months; enrollment in the same program for a minimum of 18 months; and absence of severe sensory or physical defects. The results of this study suggest that the use of the results of an organized achievement testing program should be an important part of EMR special class programs. (No refs.) *K. Janet.*

No address

1976 JOHNSON, G. ORVILLE, & BLANK, HARRIET D., eds. *Exceptional Children Research Review.* Washington, D. C., The Council for Exceptional Children, 1968, 336 p.

During the period 1963 to 1968 there has been more research conducted in the area of exceptional children than during any other comparable period in history. The trend in educational planning is toward grouping exceptional children on the basis of learning function rather than physical or medical characteristics. Handicaps traditionally included in exceptional children groups are the MR, the emotionally disturbed, the visually handicapped, the hearing impaired, the orthopedically handicapped, those with speech handicaps, and the gifted. Major trends in the education of MR children have been the addition of preschool intervention programs for EMRs, and school intervention programs such as special administrative groupings and curriculum modifications. The specific abilities, motivational patterns, learning styles and strategies, and social histories of MR children vary tremendously; therefore, serious attempts to elicit maximum achievement from an individual MR child should be based on general knowledge about MR children, and on knowledge of the response patterns and performance level of the specific child. Although there has been considerable emphasis on the "minimal brain damage" syndrome, there is no clear understanding of the etiology of this behavior pattern. Systematic evaluation of remedial educational programs for children with cerebral dysfunctions or learning disabilities is needed. This monograph presents a selective review of the research since 1963 on exceptional children. It should be of interest to educators, special educators, psychologists, psychiatrists, orthopedic physicians, speech and hearing specialists, ophthalmologists, and neurologists. (116 refs.) - *J. K. Wyatt.*

CONTENTS: The Gifted (Frierson); The Mentally Retarded (Spicker & Bartel); The Visually Impaired (Tisdall); Hearing Impairment (Craig); Cerebral Dysfunction (Meyer); Orthopedic Disabilities and Special Health Problems (Best & Force, Jr.); Speech, Language, and Communication Disorders (Smith & Lovitt); Behavioral Disorders (Graubard & Miller); and Administration (Chalfant & Henderson).

1977 SPICKER, HOWARD H., & BARTEL, NETTIE R. The mentally retarded. In: Johnson, G. Orville, & Blank, Harriett D., eds. *Exceptional Children Research Review.* Washington, D. C., The Council for Exceptional Children, 1968, Chapter 2, p. 38-109.

Recent major trends in EMR and TMR research have been in the areas of preschool interventions, school interventions, and postschool adjustment. Preschool intervention studies demonstrated that: significant IQ changes can be made with culturally disadvantaged, MR children who do not have organic brain impairments; specially designed intervention programs are necessary for hard core, psychosocially disadvantaged, MR children; traditional preschool programs seem to be as effective as special intervention programs with MR children from economically deprived, middle class, striving families; there is as much preschool improvement from special curriculum intervention alone as from a combined home and curriculum intervention program; and direct intervention strategies are needed if improvements are to be effected. The results of school intervention research studies reveal that: discrepant findings on the efficacy of administrative arrangements appear to be a function of the variety of testing instruments utilized; reading programs for EMR children need to be individually designed; the effectiveness of language lessons is dependent on the simultaneous use of a supplemental, supportive, total language development program; and the laboratory evidence on special teaching strategies is promising enough to be verified in educational settings. Postschool adjustment studies which have contributed new insights into improving and understanding the postschool adjustment of EMR and TMR adults indicate that:

follow-up studies of former graduates can be used to improve special education programs; the work performance of TMRs is enhanced by incentives; and in-depth studies that focus on what it "feels like" to be considered MR uncover sensitive and controversial issues which urgently need additional research. (17 refs.) - *J. K. Wyatt.*

1978 CHALFANT, JAMES C., & HENDERSON, ROBERT A. Administration. In: Johnson, G. Orville, & Blank, Harriett D., eds. *Exceptional Children Research Review.* Washington, D. C., The Council for Exceptional Children, 1968, Chapter 9, 304-331.

Knowledge about administrative problems in special education is limited because of the lack of a clear definition of "administrative research," the overlap and interrelatedness of special education administrative problems, the low research priority given administrative problems, and the lack of opportunities for training in research design or techniques in the curricula for training administrators. Descriptive reports and research monographs, have value as sources of new information and approaches. The data collected in correlative and normative studies have been used for program planning and as justifications for additional personnel, facilities and/or finances. It is difficult to compare or add data from different school districts, counties, or states because of differences in criteria, and in identification and diagnostic procedures. Carefully planned program evaluation studies could be used to effect changes in policies, procedures, and legislative enactments. Future research should be concerned with investigating the terminology applied to a handicapped population; obtaining definitive prevalence data; discovering procedures for early identification and educational diagnosis; evaluating the skills, experience and education needed by all levels of personnel; obtaining reliable information about the cost of special education programs; evaluating the effectiveness of the various ways in which special education programs are organized; investigating the effects of supportive services; describing different legislative patterns and comparing states with different patterns; identifying variables related to the presence or absence of special education programs; and developing model programs and legislation. (11 refs.) - *J. K. Wyatt.*

1979 RUCKER, CHAUNCEY N. Acceptance of mentally retarded junior high children in academic and non-academic classes. *Dissertation Abstracts,* 28A(8):3038-3039, 1968.

An investigation of the social acceptance of EMR junior high school students revealed that EMRs were less accepted in regular classes than normal students; EMRs were as low in the social structure of non-academic classes as they were in academic classes; EMRs overestimated their social acceptance in regular classes; and the more popular special class EMRs tended to be more accepted by normal students. All Ss attended a junior high school in which EMRs participated in both special and regular classes. The mean IQ of the 23 EMR Ss was 71 (range 54-80). Their mean CA was 14 years 9 months (range 13 yrs, 5 mos to 16 yrs, 3 mos). Teacher evaluations on the Ohio Social Acceptance Scale (OSAS) were used to determine a social position score for 23 EMR and 1,010 normal students. Special class Ss also completed the OSAS, and estimated their social position in their academic and non-academic classes. (No refs.) *K. Janet.*

No address

1980 ELLINGSON, CARETH. *The Shadow Children.* Chicago, Illinois, Topaz Books, 1967, 254 p. $6.50.

Estimates of the number of school age children suffering from some form of minimal learning handicap range from 10 to 30%. Unless these children are professionally diagnosed and receive remedial treatment, they can neither function in, nor meet the demands of the world of the normal. Children with very mild or subtle learning handicaps are usually average or above in intelligence, but they have difficulty learning unless they receive special help. In the absence of remedial treatment, their problems can become increasingly complex. The major problem area of the dyslexic child is perception; however, he may also have problems with auditory perception, laterality and directionality. Characteristics manifested in some combination or form by children with minimal brain dysfunction include specific learning, perceptual-motor, and/or general coordination deficits; hyperkinesis; impulsivity; emotional lability; short attention span; and/or distractibility. Clear distinctions can be made between the different types of learning disorders. Testing and diagnostic procedures identify both specific problem areas and an

optimal educational program for each child. In addition to discussions of the problems of children with minimal learning handicaps, general testing methods, and remedial education, this book contains a comprehensive, cross-referenced directory of testing and teaching clinics, and specialized schools and centers for children with learning disorders in the United States. This book should be of interest to parents, educators, and psychologists. (27 refs.) - *J. K. Wyatt.*

CONTENTS: A First Comment; Dyslexia; Dyslexia Case Histories; Minimal Brain Dysfunction; Testing; Teaching; Final Comment ; Glossary; Suggested Reading List; References; Directory Introduction; and Directory.

1981 MOTT, EILEEN M., & SMITH, BERYL. Programmes for specific needs. *Special Education,* 57(3):27-30, 1968.

A special program of educational activities was successfully used to teach children with learning difficulties in a special class established for 10 children at an EMR school in Abingdon, England. All Ss had severe learning difficulties and displayed a wide variety of perceptual handicaps which were complicated by other handicaps such as poor motor coordination, emotional difficulties, spatial problems, distractibility, and hyperactivity. The program was based on the use of a multisensory approach to aid in discovering each child's handicap and in applying remediation. In 1964, this program was extended to include the more severely mentally handicapped children at Bennett House School. The Montessori sensorial apparatus was used with success especially for children with impaired visual perception. Gross motor activities for understanding body images were used and visuo-motor activities were employed to aid the development of motor skills necessary for physical activities and games, for writing, and for form perception and spatial training. A pre-reading program of fine discrimination of shapes, letters, and patterns and a program of numbers based on Piaget theories were used. Language activities were also stressed. (5 refs.) - *B. Bradley.*

Tesdale School
Abingdon, England

1982 MAGARY, JAMES F., & McINTYRE, ROBERT B., eds. *Fifth Annual Distinguished Lectures in Special Education.* Los Angeles, California, University of Southern California, 1967, 90 p. $3.00.

The typical lecturer in the Summer Session 1966 Series of Distinguished Lectures in Special Education at the University of Southern California had already made a significant contribution to the field of special education prior to current federal involvement in that area. Skeels' original contributions in the 1930's and his continuing follow-up studies on the effects of environmental modification on functionally MR orphans demonstrate the developmental value of enriched school and home environments. Morkovin's review of research on the development of language in preschool deaf children emphasized the advantages of the finger spelling method. Semmel suggests that a diagnostic focus on the analysis of the language behavior of MR and non-MR disadvantaged children may lead to the identification of the specific variables which produce inadequate school functioning. Lord recommends that future approaches to the treatment of children with educational disabilities parallel those of a rehabilitation center, in that the well defined set of needs of each child determine the specific combination of individual services he receives. Seagoe's case history of a mongoloid child demonstrates that under optimal conditions reading and writing skills can be learned and retained by an SMR child. The rapid growth of special education programs in the last 20 years has involved some neglect of quality standards. The policy statement of the recent professional standards project of the Council for Exceptional Children is concerned with specifying the competencies required by special education teachers; and with outlining standards for professional ethics and for preparation of teachers, administrators, and supervisors. The papers in this book should be of interest to psychologists, psycholinguists, educators, special educators, and speech and hearing specialists. (31 refs.) *J. K. Wyatt.*

CONTENTS: Headstart on Headstart: A Thirty Year Evaluation (Skeels); The Role of Language in the Development of the Preschool Deaf Child (Morkovin); Language Research in Relationship to the Mentally Retarded and Culturally Deprived (Semmel); Medical Classification of Disabilities for Educational Purposes: A Critique (Lord); Yesterday Was Tuesday: Issues in Language Instruction for the Severely Mentally Retarded (Seagoe); and A Profession in a Hurry: The Need for Standards (Reynolds).

1983 DUNN, LLOYD M. Minimal brain dysfunction: A dilemma for educators. In: Haywood, H. Carl, ed. *Brain Damage in School Age Children.* Washington, D. C., The Council for Exceptional Children, 1968 p. 161-181.

Although there have been many studies of neurologically impaired children, the heterogeneous nature of the children's behavior makes this medical diagnosis of little utility for educational remediation. The term "Strauss syndrome" has been used to describe children who display hyperactivity, incoordination, lack of inhibition, distractibility, uneven patterns of learning abilities, disturbances in perception, and/or disturbances in concept formation. Special educational approaches for use with Strauss type and/or brain injured children have been developed in the areas of psychomotor development, perceptual training, and concept formation. Although the Lehtinen teaching techniques with children who exhibit the Strauss syndrome have ha/ almost universal acceptance by special educators, there is no empirical evidence to demonstrate their effectiveness. The definition of specific subgroups within the Strauss classification may prove useful for research purposes. In addition, there is a need for well designed experimental studies, with Strauss syndrome children, which (1) investigate the possible differential effects of the Lehtinen techniques with them, the cultural familial MR, and the normal; (2) compare the utility of Lehtinen and conventional approaches; (3) evaluate the efficacy of motor development and perceptual training; (4) investigate the effects of programs based on teaching to the child's weaknesses; and (5) utilize behavior shaping operant techniques. (41 refs.) - *J. K. Wyatt.*

1984 EGG-BENES, MARIA. Rehabilitation of slow learners in Switzerland. *Journal of Learning Disabilities,* 1(12):729-734, 1968.

Switzerland has several thousand classes for slow learners (IQ range 75-90). Recommendations regarding placement are made by the school physician after thorough testing. Additional information is obtained through parent conferences and consultation with the school psychiatric service or other medical specialists. Special training classes, called a preparatory stage, are available for children with learning difficulties who are just beginning school. These classes are for both ungifted and immature children. The training is designed so that each child has an opportunity to return to a normal class at the end of a 2-year period. Special class pupils pass through a 3-level system; they may remain at the same level for 2 or 3 years depending on their ability. The special curriculum emphasizes life-related instruction which appeals to the emotions. After the ninth year, the students are trained for an occupation. Those MRs who cannot attain this level are trained in special workshops where emphasis is placed on vocational proficiency. (No refs.) - *M. L. Wiltshire.*

Zurich Schools for the Mentally Retarded
Voltastrasse 64
8044 Zurich, Switzerland

1985 DOLGOBORODOVA, N., & DANILKINA, G. La defectologie en U.R.S.S. (Deficiencies in the U.S.S.R.). *Nos Enfants Inadaptes,* 27(3):29-31, 1968.

Students who attend special U.S.S.R. schools for the instruction of the physically and mentally handicapped are able to lead useful lives and can often hold jobs that require skills. The majority of the preschool children in the U.S.S.R. attend nursery schools, where they are carefully observed by physicians and educators who identify deficiencies of intelligence, sight, hearing, and speech. When a child shows a severe deficiency, he is sent to a school specializing in his type of handicap. These schools are 5-day boarding schools. The state pays for 5/6 of the cost of the schools, and the parents pay 1/6. The goals of these schools are the correction of and compensation for the handicap. The programs for the MR last 8 years and are both theoretical and practical. EMRs are trained for a trade such as carpentry or dressmaking. Uneducable MRs are placed in institutions where they receive medical attention and are trained to care for themselves. Educators are trained by the state to specialize in working with handicapped children. Research is being conducted to help the multihandicapped child. The goal of the schools for the handicapped is to train the young for work which they can do and which is necessary for industry and agriculture. (No refs.) *M. Lender.*

La Faculte de defectologie
Institut pedagogique A. Herzen
Leningrad, Russia

1986 Responsibility for the education of mentally handicapped children in England and Wales: Note by Department of Education and Science and by Ministry of Health. *Teaching and Training*, 6(4):103-104, 1968.

The National Association for Teachers of the Mentally Handicapped comments on a "note" by the Department of Education and Science and Ministry of Health setting forth revisions on "future developments" in educating MRs. An outline of subjects covered (including transfer of responsibility; nomenclature; staff training and security of tenure; siting of training centers; and responsibility for hostels) is presented with the associations's recommendations. (No refs.) - *J. P. West.*

1987 BLAND, GORDON A. *Education in Hospital Schools for the Mentally Handicapped.* London, England, College of Special Education, 1968, 52 p. $0.60.

A survey of hospital schools for the MR in England and Wales indicates that approximately 2,412 out of 29,955 patients attend school on a full-time basis; 43.4% have IQ <30 and only 9.8% have IQs >55. Reports on the number of specialists available to provide remediation for special problems indicate that the teachers must be prepared to rely on their own resources. Analysis of the qualifications of the head teacher in 34 schools revealed that 38.2% are qualified teachers, 38.2% are qualified supervisors with a Training Council Diploma, and 23.5% are either unqualified or have non-educational qualifications. Less than 5% of 240 assistant teachers are qualified. Teacher pupils ratios range from 1-6 to 1-25. (11-item bibliog.) - *K. Janet.*

1988 DIPROSE, D. C. The trainable retarded. *Australian Children Limited.* 3(4):101-113, 1968.

A survey at the Albert Road Public School revealed that research, teachers trained in specific areas, assurance of the continuity of program growth and development, and staff stability are factors that help provide an education which adequately prepares the MR for full adult lives. The educational preparation of TMR children requires that they be motivated in terms of needs and rewards; participate in a structured but flexible program, be given opportunities to develop self-confidence, self-respect, independence, and a sense of security. (5 refs.) - *S. Half.*

Albert Road Public School
Strathfield, New South Wales
Australia

1989 DIPROSE, D. C. The trainable retarded. *Slow Learning Child*, 14(3):138-152, 1968.

The Albert Road School attempts to prepare TMR children for adult life by encouraging the development of self-confidence, initiative, independence, and the ability to adjust to a changing environment. Program activities are aimed at the development of motor and academic skills, acceptable social behavior, the ability to travel unescorted on public transportation, proper job attitudes, personal responsibility, and peer relationships. A survey of 181 students who had attended the school from 1955 to 1965 indicates that 16 are working adults and that only 22 require residential placement. (5 refs.) *C. Rowan.*

Albert Road Public School
Strathfield, New South Wales
Australia

1990 BURROUGHS, BETTY. Retarded attend Delaware summer school program. *ICRH Newsletter*, 3(14):1, 4, 1968.

A summer school pilot project for 68 TMR children at a school in Wilmington (Delaware) provides an uninterrupted school curriculum where the children have opportunities to continue their academic work, be with their peers, and be exposed to the limitations, discipline, and structured environment that they need. The parents and school staff are greatly encouraged by the results of the program, and sanction the extension of the regular school year for TMR and multiply handicapped children. (No refs.) - *S. Half.*

Charles W. Bush School
Wilmington
Delaware

1991 Community class programs for mentally retarded gain impetus. *Motive*, 14(5): 23-25, 1968.

The community class programs for TMRs already available in many counties in Ohio have recently been extended to include 3 more Ohio communities. These facilities are financed by state, county, and federal funds. In many communities, speech therapy, recreational activities, sheltered workshops, and counseling services are integral parts of the programs. (No refs.) - *S. Half.*

1992 *Rehabilitation Services for Educable Retarded Students: Final Report.* Eugene, Oregon, Eugene Public Schools, 1968, 7 p. Mimeographed.

A cooperative work-study program in Eugene, Oregon, has prepared EMR students to meet the demands of a competitive job situation. Participants in this planned work exposure program were students in 3 junior high special education classes and 3 senior high special education classes (IQ range 41-99). Students were encouraged to learn to adjust to many different types of work environments. The emphasis was on broad experience, rather than on learning 1 skill. Students who finished the program were helped to locate permanent employment after graduation. A team of vocational counselors, social workers, special education teachers, and psychologists implemented the program. A lay advisory committee linked the project to the community. Jobs in which the students were placed had learning facilities, were easily reachable, had supervisory time to help students, safe working conditions, and employers who understood the situation. Job placement was carefully supervised. Student mobility did interfere with the program. The health and physical development of the students were stressed. In general, IQs of students participating in the program increased. (No refs.) *M. Lender.*

Eugene Public Schools
275 Seventh Avenue, East
Eugene, Oregon

1993 LIPMAN, L. "The Hamlet." *Teaching and Training*, 6(3):68-75, 1968.

"The Hamlet" is a non-profit school for 124 SMR and TMR pupils (CA 3-20 yrs) which is located in suburban Johannesburg (South Africa) and operated by the Society for the Welfare of Backward and Retarded Persons. The school program is based on the principle that no child is ineducable or untrainable. Since Kephart and Frostig training methods are extensively utilized, the activities include those which help the pupils develop visual-motor coordination, space perception, and sequenced motor abilities. Experiences with educational equipment such as blocks, beads, shapes, and form boards, are used to develop perceptual consistency. The children develop a body concept by using clay, cardboard models, puppets, mirrors, songs, play equipment, and exercises. A speech therapist helps the pupils develop communication. A part-time social worker is the liaison between children, teachers, and parents. Detailed developmental activity and progress records are kept on each pupil. (4 refs.) *G. M. Nunn.*

Hamlet School for Retarded Children
Johannesburg, South Africa

1994 BLANCHARD, IRENE, BOWLING, DON, & ROBERTS, R. LINCOLN. Educational experience for the retarded blind. *Mental Retardation (AAMD)*, 6(6):42-43, 1968.

Twenty-one SMR blind children (CA range 3-18 yrs; IQ range 3-35) successfully participated in an intensive 6-week summer program of educational activities at the Pacific State Hospital (Pomona, California). College students served as teaching assistants and worked with the children on an individual basis. Every child in the program was exposed to some new experience. The majority of the children learned many self-help skills. A concentrated effort was focused on the development of communication. This organized structural learning experience for blind MR children provided them with an opportunity to participate in group activities and recreational programs. (No refs.) - *S. Half.*

Pacific State Hospital
Pomona, California 91766

1995 MELCHIOR, JOHANNES C. The Danish centre-schools. *Developmental Medicine and Child Neurology*, 10(5):671-673, 1968.

The Danish school system has developed center-schools which provide for all types of handicapped children in 1 facility. Referrals may be made by the family or school physician, or school psychologist. Most classes have 4 or

5 students. Classrooms are well equipped and conducive to learning. The schools are well staffed and programs are planned to meet the individual's special needs. All students receive continual medical follow-up care and treatment. Parent cooperation is emphasized. Currently, a total of 65 children (CA 7 to 15 yrs) participate in the 8 center-school programs. (No refs.) - *S. Half.*

The University Clinic of
Paediatrics
Rigshospitalet
Copenhagen, Denmark

1996 JORGENSEN, E., BANGSGARD, O., & GLAD, TH. Adolescent psychiatry in a private Danish institution. *Journal of Learning Disabilities*, 1(1):30-41, 1968.

The Main School, the Holger Nielsen Youth College, and the Training School are part of the Kofoed School--a social-pedagogic institution which functions to help adolescents and their families to overcome social and personal handicaps. The Main School services youth requiring help with elementary needs such as personal hygiene, and provides training aimed at helping the adolescent to help himself. Social and economic advice is available. The Youth College boards individuals and men from the other 2 schools who hold jobs but need school support. The Training School enrolls males between the ages of 16 and 24 years who are in dire need of psychiatric help and can benefit from "social-pedagogic" and long-term psychiatric treatment. The population is derived from child welfare, juvenile authorities, or from children and youth homes. Medical treatment, family guidance, legal advice, training and support are available. Training and treatment are sometimes complicated in cases of MR, speech and hearing defects, poor physical development, poor vision, tuberculosis, veneral disease, and crab-lice. House regulations help to establish a community spirit and determine relations with the other pupils. Training is administered according to individual differences. At the completion of training, the Ss are either referred to a rehabilitation center or are given a recommendation for a disablement pension. Pupils and teachers work in teams and are responsible for all indoor/outdoor school work. Psychiatirc aid is aimed at providing the pupil with insights that will further help him to help himself. (No refs.) - *G. Trakas.*

The Kofoed Training School
Christianshavn, Denmark

1997 SKEELS, HAROLD M. Headstart on headstart: A thirty year evaluation. In: Magary, James F., & McIntyre, Robert B., eds. *Fifth Annual Distinguished Lectures in Special Education.* Los Angeles, California, University of Southern California, 1967, p. 1-23.

The findings of a series of studies conducted over a 30-year period suggest that orphans classified as functionally MR who participated in enrichment programs in the form of nurturance and/or cognitive stimulation attained a mental level equal to, or exceeding that of, the general population. Ss' fathers had a low occupational status and/or their mothers were of low intelligence. Seven- to 36-month-old orphans with an initial IQ range of 35 to 89 evidenced an average IQ gain of 28 points after an average residence of 19 months in a school for MR girls who gave them mother love and rich, wholesome, interesting developmental experiences in a "home" setting. An orphanage control group evidenced a drop in IQ from a mean of 89 to a mean of 61 over the same period of time. A follow-up study indicated that the majority of the experimental Ss continued to gain in IQ after adoption, achieved a higher level of education than control children, and were self-supporting as adults. Participation in a preschool Headstart program for orphans in the 1930's had the effect of offsetting somewhat the deadening effects of orphanage life. Preschool Ss exhibited slight gains in intelligence (approximately 5 IQ points) over a 3-year period, and marked improvement in competence, self-help, language and vocabulary. Non-participants showed an average IQ decline of approximately 5 points during the same period. A longitudinal study of 100 adopted children from 1943 to 1946 revealed that the intellectual level of these children was higher at the end of this time than would have been predicted from the intellectual, socioeconomic, or educational level of the true parents and was either equal to or above the mental level of their own children. These studies suggest that at the present time there is sufficient knowledge to design intervention programs to counteract the effects of poverty, sociocultural deprivation, and maternal deprivation. (No refs.) - *J. K. Wyatt.*

1998 KITTRELL, FLEMMIE P. Enriching the preschool experience of children from age 3: I. The program. *Children*, 15(4):135-139, 1968.

A research project sponsored by Howard University and the United States Children's Bureau enabled culturally deprived, low-income, Negro children to participate in an enriching

preschool program beginning at age 3 years. Primary objectives were to help the children become better prepared for kindergarten and elementary school, to help the parents to contribute to their children's expanding experiences, and to make the parents more aware and cognizant of available facilities and opportunities in their own neighborhoods and in the community. Ss for this 2-year project were 38 children (15 males; 23 females) all born between March 15 and September 15, 1961. A comparison group consisted of 69 children. The nursery school staff consisted of professional educators, a home-school liaison teacher, teacher's aides, students majoring in child development, and consultants from the fields of pediatrics, nursing, sociology, and psychology. Prior to the opening of the nursery school in October 1964, the staff attended a 5-day seminar aimed at stimulating the development of a cooperative team. The preschool operated 7 hours a day, 5 days a week. Supervised bus transportation was provided. The curriculum was geared toward the development of self-care skills, sharing, establishing interpersonal relationships, being able to consistentely follow through on routine activities, the acceptance of authority, and creativity. The children also learned by the process of discovery which was stimulated through use of music and are materials. They were given encouragement and an opportunity to express themselves freely. They were instructed in health and safety measures. Staff members and parents gradually developed a team relationship. Two parent projects--a public library project and a family exchange project--were initiated by the parents and appeared to have valuable carry-over effects. The projects revealed that the parents have pride in and high aspirations for their children. If the Howard University nursery school were to become involved in another project of this nature, the so-called label "for culturally deprived children and their parents" would be eliminated and an effort toward social and racial integration would be made. (2 refs.) - *S. Half.*

Howard University
Washington, D. C.

1999 FUSCHILLO, JEAN C. Enriching the preschool experience of children from age 3. II. The evaluation. *Children,* 15(4): 140-143, 1968.

An evaluation of the 2-year research project for disadvantaged children at Howard University revealed that children from the most deprived areas benefited in varying degrees from enriched nursery school experiences while children from better organized, less economically depressed families may require less than 2 years of participation. Evaluations are based on a comparison of children in the experimental group who had attended the preschool with children in a control group who had not attended the preschool. The research staff had individual conferences with the parents of each child in each group during the first year and follow-up interviews during the second year. The data indicated that there was little or no significant difference in the annual income of the families of the 2 groups. Over 3/4 of families in both groups had lived in the District of Columbia for 10 years or more and, in approximately 2/3 of the families, both parents were residing in the home. The father was the sole support in less than 45% of the families; incomes were subsidized by welfare assistance or financial aid from relatives. Poor and overcrowded housing conditions prevailed in both groups. Even though both groups were at the lower end of the socioeconomic scale, a few families were seemingly well organized, responsible, and able to maintain a slightly better standard of living. Family differences did affect the children's ability to benefit and profit from an enriching nursery school experience. Intensive psychological testing administered to both groups showed significant gains by the children in the experimental group and negligible gains by those in the comparison group; however, the experimental group was still over a year below the norm. The findings of this study suggest that culturally deprived children lag substantially behind middle class children of the same age in receptive and expressive language development. This and similar studies have led to the implementation of preschool programs aimed at remedying the language deficits of the deprived child. The progress of the children will be followed for several more years by the Social Research Group of George Washington University. (5 refs.) *S. Half.*

Howard University
Washington, D. C.

2000 TAYLOR, ALBERT S. A reading scheme for moderately to mildly retarded children. *Slow Learning Child,* 15(2):84-88, 1968.

The purpose of the reading scheme used with male MRs at the Peat Island School for Specific Purposes (New South Wales, Australia) is to equip the children with a meaningful

sight vocabulary and a useful reading vocabulary. Flash cards on a set of "survival" and "community" words are used to develop understanding. The list of sign words is arranged with regard to the safety and needs of the children. The meaning of the words is explained each time they are shown. If speech is a barrier for some children, their responses to the cards can be dramatized. The words on the cards can be pointed out in real life situations on bottles, containers, and doors, as well as when the children are out on hikes and outings. Incentives such as personal packs of flash cards can be built up for each child as he masters the sign. Once the sign words have been learned, they may be presented in different kinds of printing. This scheme deals with small units of meaningful material and gives MR children a more useful and functional vocabulary of sight words than would be possible if initial teaching efforts were directed toward learning to read from a book. The method has had significant success with children in the upper group of SMR as well as with moderate to mild MRs. (No refs.) - *M. L. Wiltshire.*

Peat Island School for
Specific Purposes
New South Wales, Australia

2001 GREENTREE, J. M. A Fareham experiment. *Teaching and Training,* 6(4):113-118, 1968.

The Autoflex system was successfully used at an adult training center to teach 2 male MRs (IQs 55) to read. At the end of 9 months, the Ss had learned the phonetic alphabet and how to analyze, synthesize, and actually read words. They could read short material and write short letters. The Autoflex system helps MRs to build a library of sight-sound reflexes for isolated symbols on a narrow choice of several symbols from which they can progress to hyphenated reading material. The transfer of these skills to social situations can then be made. The prognosis for success is most realistic for MRs with good English speech and no impairment of aural or visual perception. (No refs.) - *G. M. Munn.*

Hampshire Training Industries
Fareham Branch
England

2002 KRIPPNER, STANLEY. Etiological factors in reading disability of the academically talented in comparison to pupils of average and slow-learning ability. *Journal of Educational Research.* 61(6):275-279, 1968.

An examination of the organic and functional etiological factors involved in the reading disability of high, average, and low intelligence elementary and secondary school Ss disclosed that high intelligence Ss demonstrated significantly less organic etiology and significantly more functional etiology than either average or low intelligence Ss. Twenty-six academically talented Ss had WISC IQs in the 113-128 range, 146 average Ss had WISC IQs in the 88-112 range, and 34 slow-learning Ss had WISC IQs which ranged from 70-87. All Ss were tested for intelligence level, degree of disability, and etiology of disability. The 6 reading tests of the Durrell Analysis of Reading Difficulty were used to estimate an observed reading grade for each S. This was compared with an expected reading grade, determined by the Bond-Tinker formula, to determine degree of reading disability. Functional etiological factors included social immaturity, unfavorable educational experiences, cultural deprivation, and neurotic, psychotic and sociopathic tendencies. Organic factors were impaired seeing and hearing acuity, poor visual and auditory skills, speech defects, brain injury, disturbed neurological organization, directional confusion, and endocrinal malfunctioning. (19 refs.) - *M. L. Wiltshire.*

Maimonides Medical Center
Brooklyn, New York

2003 McLEISH, JOHN, & HIGGS, GEOFFREY. *An Inquiry into the Musical Capacities of Educationally Sub-Normal Children.* Cambridge, England, Cambridge Institute of Education (Occasional Research Papers No. 1), (No date) 12 p. $0.30.

A comparison of the musical abilities of EMR, high-music ability normal, and low-music ability normal children indicates that children of normal intelligence have greater musical aptitude than EMR children. Ss were 25 EMR children (mean CA 10 yrs, 5 mos; mean MA 7 yrs, 2 mos), 50 normal children (mean CA 9 yrs, 10 mos; mean MA 7 yrs, 2 mos) designated as Primary "A" - "best class" in music, and 30 normal secondary school children (mean CA 13 yrs; mean MA 12 yrs, 6 mos) designated as being of poor ability in general, as well as in music. The tests used were Seashore's Measures of Musical Talents and Bentley's Measure of Musical Abilities, both of which

use only pure 1-dimensional tones; and Wing's Standardized Test of Musical Intelligence which requires the discrimination of complex piano chords or melodies. Although the overall performance of the EMR children was inferior, their subtest scores on Seashore's pitch test and on Wing's chords, rhythm, harmony, and phrasing tests were equal or superior to those achieved by the normal Ss. Bentley's tests presented no problem to children in any of the groups, and differences between the scores of EMRs and controls were negligible. The results of this study lead to the conclusion that musical ability depends on auditory acuity, auditory perception, memory, judgment, and the ability to interpret groups of sounds as harmonies or dissonances, to feel contrasting rhythms, to follow the shape of a melody, and to differentiate between the different qualities of sounds. (25 refs.) - *J. P. West.*

Cambridge Institute of Education
Shaftesbury Road
Cambridge, England

2004 HIGGS, GEOFFREY. The musical potential of less able children. *Remedial Education,* 3(2):74-76, 1968.

Seashore's Measures of Musical Talents Test and Bentley's Test of Musical Abilities in Children were administered to 25 EMR children (CA range 8-15 yrs; IQ range 50-75) to evaluate their musical potential and abilities. All EMR Ss received below average scores on the Seashore test. The level of attainment of the youngsters on the Seashore test was then compared with that of children attending a primary and secondary school in order to confirm the validity of the test results. Both primary and secondary school Ss had higher musical ability than the EMR Ss. However, the musical potential of the normal Ss was not being developed and had not been recognized in their schools. EMR Ss received the highest average score for pitch discrimination but scored significantly lower on the tonal memory, time, and rhythm tests. The EMR Ss scored below the norm on Bentley's Test of Musical Ability in Children, and the primary group tested in the superior range. Encouragement in the field of music should be given EMR children as they enjoy and appreciate their musical participation and talents. (6 refs.) - *S. Half.*

Haywood School
Chelmsford, England

2005 CHALFANT, JAMES, KIRK, GIRVIN, & JENSEN, KATHLEEN. Systematic language instruction: An approach for teaching receptive language to young trainable children. *Teaching Exceptional Children,* 1(1):1-13, 1968.

An organized program based on gesture communication, imitation, and positive reinforcement of response to verbal instruction can be used to teach receptive language to TMR children. An assessment of a child's basic receptive vocabulary can be made by classroom teachers or child-care workers. Assessment begins by evaluating minimal skills (imitation of gestures and responses to requests to touch objects) and then tests for word recognition. Test results indicate which words need to be taught, and the personal characteristics of each child are used to determine the order of teaching. In general, progression is made from words which concern the child and his body; to family, home and neighborhood object and action words; and from frequently used, relevant words to abstract concepts. As each new word is introduced, a basic program of teacher demonstration, the elicitation of imitation and response to verbal instruction, positive reinforcement, or when necessary, a correction procedure is followed. Evaluation may be made on an annual, monthly, weekly, or daily basis to determine the child's retention and progress. (9 refs.) - *C. Rowan.*

Institute for Research on
Exceptional Children
University of Illinois
Urbana, Illinois

2006 SEAGOE, MAY V. Yesterday was Tuesday: Issues in language instruction for the severely mentally retarded. In: Magary, James F., & McIntyre, Robert B., eds. *Fifth Annual Distinguished Lectures in Special Education.* Los Angeles, California, University of Southern California, 1967, p. 54-67.

Under optimal conditions an SMR child can learn to read and write at a minimal adult level and can retain these skills well into adulthood if his life plan includes their use. A mongoloid child was not tested until maturity, but appeared to have a lifelong level of functioning which was from 55 to 65 on verbal scales and somewhat lower on performance scales. The principles used to teach him to read and write, beginning at the age of 7, included: provision of every physical care, remediation of correctable defects; simplification of the environment; utilization of his sense of touch and movement as

well as his sense of vision; provision of concrete experiences; and employment of play, travel, and interesting events as a basis for instruction. Analysis of diaries kept by Paul from age 12 to age 43 indicates improvement in writing ability to maturity followed by a deterioration of that ability after age 35. This case demonstrates that an SMR child is a person and has all the feelings and characteristics of a normal child. He can live as a valued member of an understanding family well into adulthood, can learn language skills and specific facts, and can make comparisons involving some degree of concept formation. The case of Paul infers that there needs to be re-examination of (1) assumptions regarding the ability of SMRs to learn to read and write; (2) methods used to teach reading and writing to SMRs; and (3) the assumption that the probable adult environment of SMRs will require little or no reading skill. (4 refs.) - *J. K. Wyatt.*

School of Education
University of California, Los Angeles
Los Angeles, California 90031

2007 DRINKWATER, D. J. English for slow learners in secondary schools (symposium). *Slow Learning Child*, 15(1):3-14, 1968.

The rapid and recent development of a secondary school system in Queensland, Australia has resulted in a large number of 14-year-olds who are not prepared for the standard curriculum. Lack of teacher training in remedial reading, crowded classrooms, overstrained timetables, lack of support, and poor library provisions prevent teachers from doing anything about the problems of slow learners. To aim for maximum individual improvement in reading, the teacher must begin by distinguishing between non-readers, partial readers, and able readers. After giving the slow learner a chance to display his ability in "communication skills," the teacher must carefully choose interesting, suitable and progressive reading material, aim for comprehension as well as pronunciation, and have suitable dictionairies readily available. (No refs.) - *C. Rowan.*

University of Queensland
Brisbane, Queensland, Australia

2008 PATTULLO, ANN W., & BARNARD, KATHRYN E. Teaching menstrual hygiene to the mentally retarded. *American Journal of Nursing*, 68(12):2572-2575, 1968.

A recent study of 18 MR adolescent girls revealed that education in the appropriate management of menstrual grooming, and proper behavior in the presence of males is important. Generally, the mother of an MR girl needs special guidance, support, and counseling so that she will be able to cope adequately with the approaching menarche in her daughter. Consistency in the learning situation coupled with the mother's complete cooperation is most relevant and plays a key role in the teaching of menstrual hygiene to the MR. The needs of MRs in this specific area may vary in degree, but are essentially the same as those of their normal peers. This study found that the majority of the MR females were able to learn self-care and to master the task of menstrual grooming. The findings of a further exploratory study of a group of 25 mothers and their MR daughters confirmed and corroborated the results of this study. (7 refs.) - *S. Half.*

University of Washington
Seattle, Washington

2009 PETERSON, DANIEL LOREN. A study of mathematical knowledge among young mental retardates. *Dissertation Abstracts*, 29A(1):104-105, 1968.

Sixty TMR and EMR Ss (CA 7 to 9) were tested to determine the relationship between mathematical achievement in retardates and selected variables (sex, type of school program, years in school, CA, MA, and sibling position). Mathematical skills evaluated included: geometry, vocabulary related to mathematics, number symbols, cardinal numbers, ordinal numbers, measurement, money, addition, and substraction. Results indicate that (1) MR children posses pre-mathematical and mathematical skills and concepts, (2) MA and mathematical skill are related, (3) CA and mathematical skill are related, (4) the relationship between sex and mathematical skill is not significant, (5) number of years in school has a significant effect on the performance of EMRs, but does not affect the performance of TMRs, (6) sibling position and mathematical performance are not related, and (7) the type of school program has a significant effect on mathematical performance. (No refs.) *K. Janet.*

No address

2010 JENKINS, OFFA L. A study of the effect of three methods of teaching arithmetic to mentally handicapped pupils. *Dissertation Abstracts*, 28A(8):3074, 1968.

A teaching approach which utilized programed materials of the tear sheet type to teach arithmetic concepts to EMR pupils produced greater changes than either a social approach method or a conventional textbook method. One hundred and twenty EMRs who ranged in age from 13 to 17 years and attended public school special education classes were divided into 3 groups. Each group received 45 hours of arithmetic instruction on measurement concepts based on 1 approach. Instruments administered as both pre- and posttests were the arithmetic section of the Metropolitan Achievement Test and teacher made tests. (No refs.) - *K. Janet.*

No address

2011 MEYEN, EDWARD L. Evaluation, the missing link in curriculum development for the mentally retarded. *Training School Bulletin*, 65(3):81-83, 1968.

Although a great deal of attention is given to evaluating a child for placement in a special class for EMRs, the evaluation of his progress after placement is often neglected. Evaluation of a child's progress should be given considerable and continual attention. Teachers should contribute to curriculum development by evaluating the content and skills which they teach. Their success in teaching skills, concepts, attitudes, and information to MRs should be evaluated, and they should formulate specific instructional objectives which allow for the evaluation of pupil performance. These instructional objectives should specify the behavior to be changed, outline the degree of change desired, and indicate a method of evaluation. (No refs.) *K. Janet.*

University of Iowa
Iowa City, Iowa 52240

2012 GEORGE PEABODY COLLEGE FOR TEACHERS. *A Study of the Effects of Two Experimental Curriculum Units on the Social Perception and Occupational Readiness of Educable Mentally Retarded Adolescents.* Final report. Clark, Gary M. Nashville, Tennessee, 1967, 122 p. Project No. 6-8926, unclassified report.

Pre- and posttest comparisons of the effects of a social perceptual training unit (experimental condition) and the environmental manipulation of a conventional special education curriculum (placebo condition) on the social behavior of 3 experimental and 3 placebo classes of 13- to 16-year-old MR adolescents (IQ range 53-80) in 3 different schools revealed no significant differences between curriculum treatment or schools. No pre- and posttest differences were found for general measures of social competence and adjustment. Significant gains ($p<.05$ level) were found for both groups on measures of social perception, social inference, and occupational readiness. Females showed significantly greater gains ($p<.025$ level) than males on ratings by teachers and outside observers, and on measures of occupational readiness and social inference. The 10-week experimental curriculum unit was a prevocational unit emphasizing perceptual training for community living. (98 refs.) - *J. K. Wyatt.*

George Peabody College
for Teachers
Nashville, Tennessee

2013 JONES, REGINALD L., MARCOTTE, MARCIA, & MARKHAM, KAREN. Modifying perceptions of trainable mental retardates. *Exceptional Children*, 34(5):309-315, 1968.

A tutorial program for TMRs in which fifth and sixth grade pupils of average or above ability were used as tutors was evaluated in terms of the attitude modification of the normals toward the TMRs. Participation as a tutor was voluntary and dependent upon completion of regular classroom assignments. The TMR teachers decided the format of the program, which was carried out in 4 daily 10-minute sessions and 1 weekly 45-minute session on the fifth day. In 1 classroom the tutoring was on an individual basis and in 2 classrooms the tutors helped with group activities.

The Ss were: tutors from the regular elementary school (6 boys and 21 girls; CA 10-12); non-participating controls (15 boys and 15 girls; CA 11-12) chosen at random from the regular elementary school; and TMRs from a special classroom school (28 boys and 8 girls; CA 8-17). Ss were individually interviewed, and records of 19 tutorial sessions were examined. There were no significant statistical differences in the accuracy of the response of participants and non-participants to questions about what TMRs should be taught or about what jobs they might be able to hold as adults. Participants evidenced a slightly superior understanding of these needs. There appeared to be no difference in work performance between tutors of average ability and those with IQs above 120. Twenty-five (96%) of the TMRs liked to work with tutors and 23 (88%) felt the tutors had been helpful. Observations of the tutorial sessions substantiated the replies of the TMRs. Tutors expressed a need for more information about TMR children. Any integration of TMRs into normal school settings should be preceded by an educational program for normals. (2 refs.) *E. F. MacGregor.*

Ohio State University
Columbus, Ohio

2014 TIMASHENKA, PAUL. The effect of high and low readability level of lectures on secondary educable mentally retarded pupil's listening comprehension of material presented. *Dissertation Abstracts,* 29A(1): 157, 1968.

The effects of the readability level of a lecture on job attitudes were evaluated for 600 secondary school, pre-work-training EMRs who were divided into 2 groups and equated for CA, IQ, and MA. The Fog Index readability formula was used to assess the reading levels of the lectures. Results revealed that (1) learning through listening occurred when the readability level of the lecture was structured at either a fourth grade or a tenth grade level, (2) the learning of terms related to job attitudes was superior for Ss who listened to a fourth grade readability level lecture, (3) a lesson structured at a fourth grade readability level was superior for EMRs in a listening situation to a lesson structured at a tenth grade readability level. (No refs.) - *K. Janet.*

No address

2015 LEWIS, JAMES F. Behavioral modification as applied to education. *Broadcaster,* 24(12):8-9, 1968.

Although behavioral modification is not new in education, the techniques of using positive reward have been greatly improved and the importance of speed, consistency, and appropriateness of reward for small successes has been recognized. Since MR children have little chance to experience success in a normal world, this rewarding of small accomplishments is particularly appropriate for them. Individualization of teaching is necessary for achievement of behavioral modification. The school psychologist should work with the teacher to determine the abilities, goals, and procedures to be used for each student. (No refs.) - *E. F. MacGregor.*

2016 TREXLER, LYLE K., & LACEY, HARVEY M. The use of a rope maze in developing a perceptual-motor training program. *Academic Therapy Quarterly,* 3(3):194-195, 1968.

The rope maze is a simple and easily constructed training instrument for developing better body control and awareness, improved balance, and gross motor functioning. It consists of 4 pieces of 1/2-inch rope about 8 feet long. Each piece of rope is fastened to a desk leg or similar object and then stretched and tied to a similar object so they are in parallel position. The children practice walking over the ropes; crawling under the ropes; walking laterally over the ropes; walking backwards over the ropes; hopping on both feet over the ropes; hopping on 1 foot; and walking on all fours forward, laterally, backwards, and in a back "crab position." The ropes can be placed at varying heights as the children become more proficient. (No refs.) - *M. L. Wiltshire.*

Pace School
McKeesport, Pennsylvania

2017 GITTER, LENA L. The promise of Montessori for special education. *Journal of Special Education,* 2(1):5-13, 1967.

With the Montessori method each child progresses at his own rate and the slow child can learn with other children on his own learning level without being discouraged by the progress of more intelligent children. The system is based on liberty coupled with responsibility. Rules which must be followed

by both the teacher and the children include: objects must be returned to their place; tasks must be completed; and when 1 child is using an object, no one else may use it. The children are responsible for keeping the classroom and materials clean and in order. The practical experiences provided by the Montessori system are not only a preparation for later living in society but a means of non-academic achievement for less gifted children and they provide satisfaction and a feeling of accomplishment now. The children learn to use materials for personal grooming, for cleaning, and to care for flowers or other plants. The teacher demonstrates the use of equipment either individually or to the class, and the children are then allowed to experiment as they like. The teacher must determine where a child is, culturally and environmentally, and start instruction from this point. She uses a 3-period lesson: association of an object with its name by the teacher; identification of the object by the child when named to him; and naming the object by the child when it is presented to him. These steps are repeated as many times as necessary. The use of concrete materials to teach abstract ideas to MR children is not only more effective initially but prepares a foundation for the child's understanding of later abstractions. Some basic learning exercises include: silence exercises--for acquiring self discipline which frees a child to learn; muscular coordination--developed by variations of walking on a line; and sensorial exercises--learning to write and spell by using tactile impressions of letters cut from sandpaper and a movable alphabet to form words. (8 refs.) - *E. F. MacGregor.*

Montessori Society
Washington, D. C.

2018 VALETT, ROBERT E. *The Remediation of Learning Disabilities.* Palo Alto, California, Fearon Publishers, 1967, 125 p. $12.00.

In order to provide aid for the person working with pupils with learning disabilities, this workbook presents material for individual psychoeducational diagnosis, evaluation, and developmental remediation of 53 basic learning abilities. Pupil evaluation forms for each of the 53 resource programs are available in replacement packages. The guidelines for each resource program are organized into 3 levels. The major areas of learning included are: gross motor development; sensory-motor integration, perceptual-motor skills; language development; conceptual skills; and social skills. This material is appropriate for special education teachers, remedial specialists, psychologists, and others concerned with children with learning disabilities. Included as suggested items are articles, books, records, filmstrips, and instructional materials for each resource program. (No refs.) - *J. Snodgrass.*

CONTENTS: A Psychoeducational Definition of Basic Learning Abilities; Forms; Gross Motor Development; Sensory-Motor Development; Perceptual Motor Skills; Language Development; Conceptual Skills; and Social Skills.

2019 DOLL, EDGAR A. Classroom management of children with learning difficulties. *Journal of Learning Disabilities,* 1(1):79-83, 1968.

Classroom teachers today manage pupils with learning disabilities by modifying the content and method of instruction to meet their individual needs. The cultural aspects of learning difficulties are now considered in evaluations of the intellectual functioning of a child. Historically, the neurological implications of psychological testing have been used to identify brain damage. Educators, school psychologists, and teachers came to regard a child as brain damaged if he manifested perceptual defects; inattentive and hyperactive behavior; or language distortions; poor memory; or their dynamic accompaniments. These characteristics were inferred rather than proved and were used to account for learning difficulties. Behavioral scientists yielded to a medical diagnosis and educational scientists considered the manifestations of organic involvement in designing his teaching methods. Today the varied degrees of learning difficulties are recognized. The teacher's task is to set curriculum goals that will meet individual needs. In both homogeneous and heterogeneous settings, the teacher should strive to effect a positive climate for learning, should be cognizant of the manifold nature of learning difficulties, and should be aware of the difference between a difficulty and a disability. This may be accomplished through continuing evaluation of the pupil. (No refs.) - *G. Trakas.*

Bellingham Public Schools
Bellingham, Washington

367-041 O - 69 - 10

2020 WARD, TED. Questions teachers should ask...in choosing instructional material. *Teaching Exceptional Children*, 1(1):21-23, 1968.

To increase children's learning it is essential for every teacher to be objective, use sound judgment and insight, and be truly perspective in the selection and use of instructional materials. The Instructional Materials Centers for Handicapped Children and Youth provide materials, field representatives, loans of instructional materials, and visits to the centers. Teachers should consider whether or not materials have sufficient appeal or interest value for the children in a specific class; are directly related to the pupil's needs; have relevant content and accurate subject matter; are practical and have a teaching value in just accordance with the cost. Teachers must be objective in the selection of educational materials and should develop evaluative skills. (No refs.) *S. Half.*

Instructional Materials Center for
Handicapped Children and Youth
Michigan State University
East Lansing, Michigan

2021 FUCHIGAMI, ROBERT Y., & SMITH, RONALD F. Guidelines for developing and evaluating seatwork materials for handicapped children. *Education and Training of the Mentally Retarded*, 3(3):141-145, 1968.

"Project Seatwork" for handicapped children isolated seatwork areas of particular need, and provided guidelines to enhance the quality of seatwork materials. Guidelines for the types of material to be submitted to the center were organized from the responses made to questionnaires sent to special educators. Teachers were invited to select and send examples of seatwork in any subject area covered by the guidelines. A file of seatwork materials in the area of arithmetic, reading, social studies, science, home economics, and vocational training which are available to teachers on request has been developed. At the present time, requests from teachers for seatwork materials have been minimal, and an attempt will be made to increase participation in the project. (3 refs.) - *S. Half.*

Instructional Materials Center
University of Oregon
Eugene, Oregon

Vocational Habilitation-Rehabilitation

2022 COHEN, JULIUS E. Vocational rehabilitation of the mentally retarded. *Pediatric Clinics of North America*, 15(4):1017-1028, 1968.

It is the responsibility of all professionals on the health care team to understand the potential of the MR for useful occupations and to establish a meaningful vocational rehabilitation for each individual. Lack of early stimulation and environmental experiences accounts for significant numbers of MRs who have been unrecognized and mislabeled. Attention should be shifted to high-risk children in poverty areas. Institutions for the retarded should be organized on an educational, vocational, and social basis. The chief problems in administering programs for the MR are: the young age limits encountered; the poor work habits, attitudes, and limited work experience; and the need for counseling the entire family. Retardates are classified as: directly placeable; deferred placeable; sheltered employable; and self-care. Work s mple techniques have been valuable in helping personal adjustment by actual work experiences. Schools are assuming the job of educating the mildly retarded until age 21 and sheltered workshop programs have been extended for SMRs. The physician should play an understanding and supportive role with the mildly retarded and the family should be drawn into the planning and decision-making. The ultimate potential of the individual in leading a productive life is to be emphasized. (15 refs.) *L. E. Clark.*

611 Church Street
Ann Arbor
Michigan

2023 DYBWAD, ROSEMARY, & DYBWAD, GUNNAR. Mental retardation: A look at its international rehabilitation aspects. *International Rehabilitation Review,* 19(2):6-8, 1968.

International activities in MR rehabilitation such as pre-vocational public school programs, "work-study" programs, government employment of MRs, sheltered workshops where the profoundly MR can work on regular schedules, hostels, and documented proof that "educable" MRs can perform useful work, use public transportation unaccompanied, and eat in public restaurants, have achieved public acceptance of the MR adult's potential. The work of the United Nations and some of its specialized agencies should be augmented by international acceptance of the World Health Organization's 4-level classification, and world-wide participation via publications, fellowships, expert consultations, and regional conferences. (8-item bibliog.)
C. Rowan.

No address

2024 BANK-MIKKELSEN, N. E. Preparing the mentally retarded for adult life. *Rehabilitation in Australia,* 6(1):16-22, 1968.

In Denmark MR is defined as a purely social problem and the MR person has the same rights as other citizens and, in addition, has a right to special training, rehabilitation, and guidance that will strengthen his ability to exercise these rights with the "minimum of abridgement." Each of 12 designated areas of Denmark has a central institution with all the facilities for medical treatment and care, and for education and training. Some MRs stay in these centers for a long time but more often they stay short periods for special treatment and training. Each institution should house about 300 children with no more than 12 to 15 mixed boys and girls in a single unit. The staff should be both men and women, preferably young. The physical environment should be both beautiful and stimulating and contact with the outside world must be maintained and strengthened. It may be concluded that these institutions will function best with a multi-disciplinary approach, including special professional groups and cooperation with the parents and the community. The main objective of the central institution is to make the MRs producers, so that in turn they will become consumers, thus becoming an integral part of the community, no longer regarded as a special weaker group of people. (No refs.)
B. Parker.

No address

2025 SRIVASTAVA, S. P. Job placement of the mentally retarded. *Indian Journal of Mental Retardation,* 1(2):81-86, 1968.

MRs should have every available opportunity to become vocationally trained and to develop their skills to the maximum. The employable mentally handicapped should be utilized in jobs that are consistent with their vocational assets and limitations. There is a wide variety of work that the MRs can capably perform. The MRs entering employment should have adequate job preparation, motivation, supportive counseling services, personal adjustment training, and good grooming habits. The vocational counselor can be most effective in the capacity of liaison person between his clients and the employer. Job analysis, appraisal of the client's abilities to perform, training, transfer supervision, job modification, follow-up, and evaluation should be carefully made in the vocational rehabilitation and placement process of the MR. The public should be informed that the mentally subnormal are able to make a significant contribution in the community. (9 refs.)
S. Half.

University of Lucknow
Lucknow 7, India

2026 CLELAND, CHARLES C., & SWARTZ, JON D. Deprivation, reinforcement and peer support as work motivators: A paradigm for habilitation of older retardates. *Community Mental Health Journal,* 4(2):120-128, 1968.

Rehabilitation of adult institutionalized retardates is accomplished through a practical 3-stage program beginning with deprivation of institutional job, which supposedly heightens motivation to work in a preselected job outside the hospital. Success here receives social reinforcement and is made less threatening through placement along with other retardates. Capitalizing on "latent strengths," this program succeeds in placing

long-term institutionalized retardates without undue anxiety to the retardate, rehabilitation worker, or prospective employer. (36 refs.) - *C. Rowan.*

University of Texas
Austin, Texas 78712

2027 LANE HUMAN RESOURCES. *Vocational Rehabilitation of Physically and/or Mentally Handicapped Youth Being Served By a Special Youth Opportunity Center.* Final report. Campbell, Robert B., Eugene, Oregon, May 1967, 13 p. Grant No. RD-1602-P, unclassified report.

The Employment Training Division, a program of the Lane County Youth Projects of Eugene (Oregon) offers vocational rehabilitation services to youth between 16 and 21 years of age, who are physically and/or mentally handicapped, and includes paid work experiences, basic education, and occupational training as well as counseling, medical services, job placement and follow up. Referrals are made by welfare agencies, employment services, probation and parole, courts, parents, and other sources. Acceptance for service is contingent upon therapeutic need, many referred because of physical disability were found to have psychological problems as well and should have been served at a much earlier age. A major problem for the counselors has been the time-consuming problem of developing rapport to the point where the client can utilize the agency's services. (No refs.)
M. L. Wiltshire.

2028 HELLINGER, EVELYN M. Counseling and guidance in the vocational adjustment and placement of mentally retarded institutionalized girls. *Dissertation Abstracts,* 29A(3):813, 1968.

Personality traits are the deciding factors in the vocational success and habilitation of the mentally handicapped. Ten MR girls (CA 19 to 37 yrs; IQ 56 to 83) were evaluated for adjustment in their employment and living situations. Negative factors found were in the areas of: appearance of health; interpersonal relationships; cultural deprivation effects; emotional health; adaptibility; practical problem management; and work habits. Vocational adjustment was most impeded by cultural deprivation and the emotional health of the girls. Counseling techniques utilized to overcome problems included: assessing knowledge of the Ss; praise; environmental manipulation; and evaluation discussions. Proper guidance and counseling will allow the institutionalized MR to participate in community affairs. (No refs.) - *M. Drossman.*

No address

2029 CHAFFIN, JERRY D. Production rate as a variable in the job success or failure of educable mentally retarded adolescents. *Dissertation Abstracts,* 28A(7):2432-2433, 1968.

Production rate appears to be an important variable in successful employment experiences with EMRs. Ten pairs of EMR students matched for success or non-success on-the-job (as determined by employer ratings) were assigned to a specific employer for a period of 2 weeks and those employees rated as successful had a significantly higher production rate than unsuccessful members of the pair. A second experiment designed to test whether an employer's rating changed as the production rate changed confirmed the findings. Production rate is, in turn, related to motivation and manual dexterity; however, these variables need further elucidation. (No refs.) *M. Drossman.*

No address

2030 BURROW, WILL H. Potential: An unknown quantity. *Training School Bulletin,* 65(1):12-20, 1968.

The ability of the MR to find and hold employment is affected by certain factors such as: personal appearance; ability to perform the tasks expected; the available jobs in the economy; how effectively placement agencies work; the public's acceptance of the MR as a useful human; and the MR's self-image. The actual vocational success rate of the MR in society is open to question; however, it seems reasonable to assume that as automation increases, new opportunities for the MR will also increase as will public acceptance. It is suggested that with public acceptance, the MR will no longer be considered a "special" group, but persons entitled to accessible and equal employment opportunity. (5 refs.) - *M. Drossman.*

Mansfield Training School
Mansfield Depot, Connecticut

2031 BLACKMAN, LEONARD S., & SIPERSTEIN, GARY N. Job analysis and the vocational evaluation of the mentally retarded. *Rehabilitation Literature*, 29(4):103-105, 1968.

Vocational rehabilitation counselors recognize the need for new approaches to appropriate indices of the vocational potential of the MR. Many negative factors are involved in the use of standardized tests and such tests have been found to be inadequate for retarded groups. The use of factor analysis for identification purposes of common skills used in a variety of simulated industrial tasks is fairly good but tends to underestimate unique skills. The ability to predict the work potential of MR individuals will be greatly enhanced by a clear and precise understanding of skills in relation to task and in the development of relevant methods of assessing these skills. This approach could modify the present practice of vocational training and placement decisions for the MR being made on the basis of IQ level only. This new approach allows MR individuals to obtain employment at a higher skill level. Recent studies tend to confirm the new approach techniques. (26 refs.) - *S. Half.*

Teachers College
Columbia University
Palisades, New York 10964

2032 GOGSTAD, ANDERS CHR. *Evaluation of Factors Determining the Results of Vocational Rehabilitation.* Universitetsforlaget, Norway, 1968, (Williams and Wilkins, Baltimore, Maryland, exclusive U. S. agents), 155 p. $8.75.

A follow-up study of 672 persons who had an average stay of 3 months at the State Rehabilitation Institute, Bergen, Norway revealed that rehabilitation attempts were less effective for patients who were over age 45 or had mental disorders than for other patients. Low, but significant, relationships were found between unemployment 18 months after discharge from the Institute and female sex, low intelligence (below average Monnesland IQ), 24 or more months of prehabilitation unemployment, and low educational level. The Institute functions as a vocational rehabilitation unit and provides individual evaluations of working capacity, vocational guidance, work-tolerance training and physical training. All entering patients participate in an evaluation program which is based on a medical examination, supplementary medical and physiological tests, a social history, psychological testing and a clinical interview, and occupational history. This study indicates that the results of rehabilitation are influenced by a multiplicity of factors. Field research regarding methods of strengthening motivation and self confidence and of counteracting passive dependent attitudes is needed. This monograph should be of interest to psychologists, rehabilitators, social workers, and physicians. (87 refs.) *J. K. Wyatt.*

CONTENTS: Methods, Materials and Hypotheses; The Separate Variables; The Rehabilitation Plan and Working Situation at the Time of Follow-up; A Joint-Analysis of the Registered Characteristics; and Discussion.

2033 Rural retarded learn independence. *Rehabilitation Record*, 9(2):15-17, 1968.

A study of a hypothetical TMR's progression through initial referral to final graduation from the Vocational Training Center in Fargo (North Dakota) is presented. (No refs.) *M. Drossman.*

2034 MAYER, SONDRA M. Field research on behalf of the handicapped. *Mental Retardation (AAMD)*, 6(5):53, 1968.

Forty-eight employers who had been interviewed concerning employment of MRs were surveyed in order to investigate the possibility of a negative interview effect. Eighty-eight percent indicated they had had no change in attitude concerning employment of MRs; 1 employer indicated positive change while 3 indicated negative change. Suggestions for further study in this area were proposed. (No refs.) - *E. R. Bozymski.*

Columbia University
New York, New York 10964

2035 U. S. LABOR DEPARTMENT. *Sheltered Workshops: A Pathway to Regular Employment.* (Manpower Research Bulletin No. 15.) Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, March 1967, 36 p.

Since 1965, more than 1,000 sheltered workshops in the United States have been providing about 100,000 physically, mentally, socially, or emotionally disabled persons

with opportunities to train for regular employment. In recent years workshops have expanded their programs to include the MR, the mentally ill, narcotics addicts, socially inadequate welfare recipients, and school dropouts. Of the almost 900 workshops certified by the United States Department of Labor in 1966, 331 served several types of disabilities, 296 served the MR, 108 the blind, 86 served alcoholics, and 76 served other specific disability groups. The greatest growth in sheltered workshops between 1955 and 1966 was in shops for training MRs. In 1955 there were only 2 workshops for MRs. More than 1/3 of all certified sheltered workshops are located in California, New York, Ohio, and Pennsylvania. The work performed in many workshops requires little skill. Although some shops pay the legal minimum wage, workers in 70% of the sheltered workshops which had contracts from commercial firms in 1965 earned less than 75 cents an hour, and in more than 25% of these shops, the average hourly rate was below 30 cents. Factors which account for the low average wage rates in sheltered workshops are the low production and skill level of the workers, the small size of most shops, the use of production techniques and equipment which frequently cannot be compared with those used in a modern industrial plant, and the fact that many shops are still in their formative stages. New programs, concepts, and directions suggested for workshops include greater use of interdisciplinary teams, direct placement of clients, more programs directed toward the integration and coordination of all community resources, collaboration among workshops, expanded use of workshop facilities, and consideration of the use of financial incentives. (24 refs.) - *J. K. Wyatt.*

CONTENTS: Workshop Clientele; Services and Types of Workshops; Organization, Size, and Location; Work and Pay in Sheltered Workshops; Job Placement and Development; Role of Sheltered Workshops under the Manpower Development and Training Act; Other Workshop Programs, Recent Legislative Developments; Workshop Experience Abroad; and New Directions for Sheltered Workshops.

2036 STUBBINS, JOSEPH, & HADLEY, ROBERT G. *Workshops for the Handicapped: An Annotated Bibliography, No. 4.* Washington, D. C., National Association of Sheltered Workshops and Homebound Programs, 1967, 37 p. $1.00.

An annotated bibliography with 113 items on workshops and workshop programs for the handicapped which covers the literature from approximately June, 1966 until the present is presented. Workshops now exist in many countries of the world and in most of the United States and clients accepted for rehabilitation include the physically handicapped, the MR, and the emotionally disturbed. This booklet should be of interest to persons in vocational rehabilitation, guidance, special education, and interested laymen. (113-item bibliog.) - *M. Drossman.*

2037 *Vocational Guidance-Employment and After Care.* (Guidelines for Teachers No. 2.) London, England, College of Special Education, 1968, 16 p.

In Britain, the following concepts are now being stressed to aid the EMR in transition from school to work: a good attitude, punctuality, diligence, ability to assess one's own work, a self critical attitude, provision of useful work experience, and acquisition of skills. Backward children in secondary schools should be taught how to interview for jobs, how to talk to people, about unions, further training possibilities, use of leizure time, and moral standards. Severely subnormal individuals may also profit from vocational guidance under the Disablement Persons Employment Acts of 1944 and 1958. Follow-up care for the EMR and the TMR is essential and is provided by national, state, and volunteer agencies who assist with integration of MRs into the community. (No refs.) *B. Parker.*

CONTENTS: General problems of placement of backward and mentally handicapped children; Vocational guidance for backward children in secondary schools; Vocational guidance for ESN children in special schools; Vocational guidance for Severely sub-normal children in training centres; The Youth Employment Service; After-Care services; and One way of approaching the problem--an all-round education for the working world.

2038 INDIANA UNIVERSITY AUDIO-VISUAL CENTER FOR INDIANAPOLIS GOODWILL INDUSTRIES. *Personal Adjustment Training in a Sheltered Workshop* (Film). Bloomington, Indiana, Field Services Indiana University, 1969, $50.00 (Rental $7.25)

The theories, practices, and techniques used by sheltered workshops in providing therapy for troubled and handicapped people are the main themes of this film production. A portion is devoted to a case study of 1 girl

finding adjustment through training and a renewed social outlook. The workshop is seen as an outlet for many agencies to aid such persons--a place where doctors, nurses, psychologists, and social workers are present to help. Future adjustment to industrial pressures is the goal, and the overall concern is with becoming a better worker, rather than learning a specific skill. (No refs.)
Film release fact sheet.

2039 INSTITUTE OF REHABILITATION MEDICINE. *Bibliography on Self-Help Devices and Orthotics: 1950-1967.* (Rehabilitation Monograph 35.) New York, New York, New York University Medical Center, 1968, 116 p. $2.00.

An unannotated, non-selective bibliography on self-help devices and orthotics for amputees, paraplegics, CPs, and otherwise handicapped persons is presented. The items are from the years 1950 to 1967 and are arranged by year in categories which include: general articles, dressing, personal hygiene, eating, writing, and many others. Articles from the *American Journal of Occupation Therapy* are included and some other journals and books are also covered. The format is designed so that the articles can be rearranged in any order an individual might prefer in a loose-leaf notebook. This booklet is designed primarily for occupational therapists but should be of interest to all persons working with handicapped patients. (No refs.) - *M. Drossman.*

2040 OCCUPATIONAL THERAPY SERVICE. *Rehabilitation Equipment and Devices Constructed in Wood: Instructions For Making Exercise Equipment, ADL Devices, and Occupational Therapy Project Kits.* (Rehabilitation Monograph 36.) New York, New York, New York University Medical Center, 1968, 90 p. $2.00.

A manual of items designed for handicapped patients' needs and for therapeutic projects is presented with detailed plans and pictures which can be used to reproduce the equipment. This booklet should be of interest to occupational therapists, physical therapists, and persons working in the field of rehabilitation. (No refs.) - *M. Drossman.*

Recreation

2041 PRYTHERCH, H. Teaching the severely subnormal adult to swim. *Journal of Mental Subnormality,* 14(2):62-69, 1968.

The severely subnormal adult must learn to swim through a very slow step-by-step process. Since the MR often encounters frustrating experiences and has many failures, it is particularly important that the swimming guide be set up with incentives such as a series of certificates. Success in swimming was carried over to other aspects of the adult MR's life. (4 refs.) - *B. Parker.*

Training Centre
Aldridge Road
Birmingham, England

2042 THORPE, L. S. C. Fantastic? A swimming achievement. *Teaching and Training,* 6(3):82-83, 1968.

Over a 4-year period, 15 subnormal adults from Hyde training center were taught to swim--several well enough to win an award. The MRs learned, as by-products to the swimming lessons, proper dressing procedures, good grooming, and approved social behavior. (No refs.) - *E. F. MacGregor.*

Adult Training Centre
Hyde, Cheshire
England

Residential Services

2043 CLEMENTS, JAMES D. The residential care facility: Indications for placement. *Pediatric Clinics of North America*, 15(4):1029-1040, 1968.

In recommending placement of an MR into an institution, the pediatrician should consider: the specific and total needs of the patient and his relationship with the family; family attitudes and emotional stability; the emotional and social needs of all members of the family and their ability to meet these; community services other than institutions; age of the patient and associated physical handicaps; the degree of MR; financial status of the family; availability of institutional facilities and their quality; and the law, customs, and attitudes--both local and state. Residential care is the treatment of choice when: constant medical and nursing care is essential to maintaining life; stress, such as death or prolonged illness of a member occurs, or whenever a breathing period is required; abrupt regression in behavior or physical condition is encountered; progressive physical deterioration; in the case of any profoundly retarded child, especially if hyperactive; in older SMR cases; in moderately retarded cases no longer under effective supervision from aging parents; in an inadequate home setting, after foster homes and other alternatives have been explored; and in the absence of any community program whatsoever. (16 refs.) *L. E. Clark.*

Georgia Retardation Center
North Peachtree and Peeler Roads
Chamblee, Georgia 30005

2044 CRAFT, MICHAEL, & MILES, LEWIS. *Patterns of Care for the Subnormal.* Oxford, England, Pergamon Press, 1967, 141 p. $5.00.

A 1964 analysis of admissions to Welsh hospitals revealed that: the average IQ of individuals labeled subnormal was 64.6; hospitalization and the label subnormal were frequently used to solve personal and social problems; the easier it was to obtain hospital admission, the larger the number of social problems solved in this manner; and labeling and hospitalization of individuals may decrease as alternative measures such as hostels, lodging houses, and residential schools increase in availability. Surveys of the incidence of severe subnormality in the United Kingdom after 1959, report rates in the range of 3.5 to 3.6/1,000 population. Welsh surveys disclose community incidence rates of from 0.9 to 3.7/100 population, and hospital occupancy rates of from 0.6 to 1.4 beds/1,000 population. Analysis of trends in an 850-bed Welsh subnormality hospital system from 1960 to 1963 indicate that although there was little change in the total resident population, there were changes both in the categories and age groups of patients treated. These changes appear to reflect the influence of 4 newly established units: a ward for young adult males with behavioral and psychopathic disorders, hostel-type facilities for working women, a treatment program for older male offenders, and a special school for MR children with communication difficulties. Analyses of community trends indicate that they are quite variable and dependent on the needs and interests in individual locales. Future services for the subnormal should provide for the training of almost all children in suitable classes supervised by the education department, and for a consultant and subnormality hospital for each catchment area. This book should be of interest to professional workers in the field of MR. (107 refs.) - *J. K. Wyatt.*

CONTENTS: The Term Subnormal; Variations on the Theme of Subnormality; The Prevalence of Mental Subnormality; Trends in a Hospital Service; Trends in a Community Service; An Analysis of Subnormality Admissions to Welsh Subnormality Hospitals in 1964; An Enumeration of Those Needing All Types of Subnormality Hospital Care in Wales on 1.1.65; Patterns of Subnormality Care in Other Societies; Hospital Functions; and Towards a Comprehensive Service for the Subnormal.

2045 POUNDS, V. A. Our mental subnormality hospitals. *Nursing Mirror*, 216(8): 34-35, 1968.

There is a need for new and improved residential facilities for the MR which should be

constructed following consultation with staff as they are most familiar with everyday living conditions. Those working in direct contact with patients have knowledge of the problem areas and environmental needs. There is a shortage of nurses who are adaptable, flexible, compassionate, interested, practical, and who possess common sense; intelligence is not enough if we are to meet adequately the basic needs of the MR in residential placement. Small organized, structured group situations would provide for adequate care and attention, and the nurses would then be able to assume the role of mother-substitute. The MR should be given every opportunity for emotional growth and development and their maturation process will be enhanced in a secure, stable, and adequate environment. (No refs.) - *S. Half.*

No address

2046 Mental retardation hospital improvement program 1968. *Programs for the Handicapped*, Newsletter of the Secretary's Committee on Mental Retardation, U. S. Health, Education, and Welfare Department, 69(2):1-2, 1969.

The MR Hospital Improvement Program (HIP), a direct grant program proposed to break through traditional patterns by providing humanizing and individual care to the resident by bringing skill and pride to direct care personnel, by applying techniques that will increase effectiveness of training, education, and habilitation of the residents, and by streamlining administrative patterns to extend personnel. In the past 4 years, HIP funds of 20 million dollars have been utilized by 90 of 165 state institutions. A list of states and institutions, their purposes, and financial awards are given. (No refs.) *B. Parker.*

2047 PACIFIC STATE HOSPITAL. POMONA, CALIFORNIA. *HIP Activity Manual: Directing Activities for Profoundly and Severely Retarded Children.* Pomona, California, 1968, 223 p.

Participation by 6- to 17-year-old SMR children at Pacific State Hospital in a habilitation program for either 1- or 3-year periods resulted in varying degrees of success in almost all areas in which training was attempted. The mental and social ages of all Ss were under 2 years; the IQs of 82% of the Ss were below 30; and 75% had been institutionalized for at least 4 years. Specific project goals were directed toward increasing experiences and incoming stimuli; the stimulation of feelings of success and self worth; and the development of self-help skills, socially acceptable behavior, body coordination, increased perception, constructive play patterns, internalized motivation, and the basic socialization skills. A treatment team consisting of a physician, a social worker, a recreation therapist, a special education teacher and the ward charges worked directly with the children and the ward staff to develop, implement, and evaluate the treatment approaches. Small group structure and enriched staffing proved to be the most effective habilitation methods. Concepts and approaches which were found to be useful included: flexible, realistic levels of expectation; teaching methods that broke tasks into simple steps, allowed the children to learn by doing, and encouraged them to do things by themselves; repetition, consistency of approach, encouragement and enthusiasm; and the use of maximum positive reenforcement for appropriate behavior and minimum negative reinforcement for maladjustive behavior. In addition to the project description, this manual contains a discussion of some program implementation techniques and step-by-step descriptions of teaching methods for a variety of activities which should be of interest to psychiatrists, psychologists, social workers, recreation personnel, and special educators. (No refs.) - *J. K. Wyatt.*

CONTENTS: Planning and Preparation; and Activities.

2048 WARD, E. Preparing for adult life. *Parents' Voice*, 18(4):22, 1968.

Through the joint efforts of the Shrewsbury Society for Mentally Handicapped Children and the Health Department of the Salop County Council, 16 girls (CA 17-25) were established as residents at Sutton Lodge (Shrewsbury) where they endeavored to prepare themselves for adult living. With supervision, the girls learned to prepare vegetables, to make salads and pastries, to assist in planning meals, and in the purchase of necessary groceries. The residents developed number concepts, learned to tell time, and spent much time cooking, gardening, housekeeping, and cleaning. Following the completion of their household chores they participated in play and recreational activities whereby good sportmanship, fair play, and teamwork became evident. Wholesome interpersonal relationships were established and many new skills,

techniques, and crafts were learned. These enriching experiences and guidance supervision by staff and volunteer workers enhanced the patients' opportunities to make satisfactory and worthwhile adjustments when transferred to the Adult Training Center. The girls showed marked improvement, gained self-esteem, and developed more confidence in themselves. (No refs.) - *S. Half.*

No address

2049 WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION. *A Symposium: 1,500,000 Bits of Information...Some Implications for Action.* Boulder, Colorado, 1967, 31 p.

In 1963, a joint data collection program was instituted among 9 institutions for the MR; in 1964, there were 13 institutions from 12 states, and by 1966, there were 19 institutions participating with data on 23,443 residents. The objectives of this project were: to stimulate research in MR; to facilitate institutional cooperation; and to continue development and refinement of methods used to collect large amounts of data. The wealth of information collected through this program include these highlights: 13% of the residents are from minority groups; 55% are male; 2% are deaf; 15% are MR from unknown etiology; 22% must be completely fed; 63% are not considered eligible for school programs of any kind; 39% cannot speak; 23% are nonambulatory; 22% are not toilet trained; 29% have never had a visitor; and 58% never go home on leave with their families. The mean IQ of these institutionalized patients is 29, with an SD of 21; the mean institutionalization period is 11 years; and the mean CA is 23 years. It is hoped that such data collections will allow comparisons in medical, behavioral, and social areas and give a more rational approach to the problem confronting institutions and their residents. (14 refs.) *M. Drossman.*

CONTENTS: A Regional Census of Mental Retardation: The System and Its Reliability (Payne); Implications for Institutional Administration (Thorne); Implications for General Data Utilization (Perry); Some Research Specifics from Data Generalities (Thuline); Research Potential of the WICHE Data (Johnson); and The Devil's Advocate Looks at Limitations (Marks).

2050 PAYNE, DAN. Regional census of mental retardation: The system and its reliability. In: Western Interstate Commission for Higher Education. *A Symposium: 1,500,000 Bits of Information...Some Implications for Action.* Boulder, Colorado, 1967, p. 1-4.

In 1966, under the direction of the Western Interstate Commission for Higher Education, a program utilizing 19 institutions for the MR, in 12 western states collected data on a total of 23,443 residents. The collection of data should stimulate research on MR, facilitate institutional cooperation, and encourage the continuing development of methods for collecting and processing large amounts of data. All participating institutions use the Population Census Standard Form developed through 7 years of study by the Pacific State Hospital. Changes, additions, and deletions can be made each year so that the data are of maximum value to all departments in the institutions. There are 3 broad categories: resident identification, such as admission number, birth date, county of origin, IQ, sex, and race; program information, such as work or therapy programs; and school attendance and behavioral characteristics, such as self-help skills, ambulation ability, toilet training, and speech. This amount of data (73 items x 23,443) requires punch cards which are automatically processed. A wealth of information is now available on the population of western state institutions for the MR. (3 refs.) - *M. L. Wiltshire.*

2051 THORNE, GARETH. Implications for institutional administration. In: Western Interstate Commission for Higher Education. *A Symposium: 1,500,000 Bits of Information...Some Implications for Action.* Boulder, Colorado, 1967, p. 5-7.

Data collected by the WICHE project on MR provides a serious challenge to the administration of the institutions on which the information was collected. Factual information for improving existing programs and for developing better programs is evident, budget and staffing needs can be predicted, and the data provide a sound base for budget requests to state legislatures. To make maximum use of the data, a positive attitude by the administrator is important. The data analyst, incorporated into the institution planning becomes a part of the planning team rather than a person who simply reports the status quo. The availability of a large bank of data is an inducement for research and for university based research activities. This program has provided a means for developing common media of communication between institutions. (No refs.) - *M. L. Wiltshire.*

2052 PERRY, ROBERT. Implications for general data utilization. In: Western Interstate Commission for Higher Education. *A Symposium: 1,500,000 Bits of Information ...Some Implications for Action.* Boulder, Colorado, 1967, p. 9-11.

The data provides many possibilities for research and has been found valuable in training psychiatric technicians who are given a 7 1/2 month training program before starting work in the institution. The data form is first used to demonstrate how to collect data and when this is completed, the results are interpreted to the technician. Results have forced program development as illustrated by 1 item, that 74% of the residents had had no contact with anyone--parents, friends, or relatives; social services reduced this figure to 44%. Data can define units of residents who are enough alike that programs can be developed for them and it is extremely valuable in budget-making and in the control of expenditures. (No refs.)
M. L. Wiltshire.

2053 THULINE, HORACE. Some research specifics from data generalities. In: Western Interstate Commission for Higher Education. *A Symposium: 1,500,000 Bits of Information...Some Implications for Action.* Boulder, Colorado, 1967, p. 13-15.

While the mass of information about 23,443 individuals at first seems overwhelming, it presents opportunity for research into known factors in MR, new factors, relationships between factors, and fields of investigation. To the medical staff, the problems of a missed diagnosis in an institutional population becomes important. Behavior of the residents is of interest to the psychologist, while cultural factors and family relationships are of interest to the social worker. Many questions are raised and these become hypotheses to be tested. (No refs.)
M. L. Wiltshire.

2054 JOHNSON, RONALD G. Research potential for the WICHE data. In: Western Interstate Commission for Higher Education. *A Symposium: 1,500,000 Bits of Information... Some Implications for Action.* Boulder, Colorado, 1967, p. 17-25.

With data based on 23,000 MRs, sex differences and frequency in institutionalization become more obvious. From normal down to the profound, there is a disproportionate number of males, with the largest ratio between males and females at the severe and profound levels. This suggests that some types of retardation may be associated with the sex chromosomes. There is also a disproportionate number of white patients in all genetically determined disorders, especially PKU. The ethnic background of PKU Ss, with the exception of Japan, has been found in north and western European countries or in countries whose populations derived from that part of Europe. Thus, large data collections make available new knowledge to bring to bear on old questions. (11 refs.) - *M. L. Wiltshire.*

2055 MARKS, JOHN R. The devil's advocate looks at limitations. In: Western Interstate Commission for Higher Education. *A Symposium: 1,500,000 Bits of Information... Some Implications for Action.* Boulder, Colorado, 1967, p. 27-31.

Limitations of the WICHE data collection program emerge in 2 ways: from within the project itself and from the philosophical concepts. Many of the items require subjective decisions by the persons filling out the form and, although efforts are being made to construct a form for more objective observations, this has not yet been done. Care must be taken in the evaluation of this data since much of it has been taken by persons who have not participated in data collection before. Any collection of data on institutions is a measure of interaction among resident, institution (the facilities, the staff, and program content), and the community. While institutions are needed for specific purposes, large sweeping programs for institutions take place only at the expense of service programs on the community level. Small cottage units within the institution are being built, but this is extremely expensive when facilities could be built in the communities for about 1/3 the cost. (No refs.) - *M. L. Wiltshire.*

2056 BROWDER, J. ALBERT. Institutionalization for a retarded child? *Children Limited,* 17(2):9, 1968.

Before the decision to institutionalize an MR child is made, parents, aided by professional counseling, must evaluate the physical and emotional needs of the child, the accessibility and types of facilities available, and the family's emotional and environmental situation. Since a home setting cultivates the assets of the handicapped child, every effort

should be made to avoid institutionalization --especially before the age of 4. (No refs.) *J. P. West.*

Department of Pediatrics
University of New Mexico
School of Medicine
Albuquerque, New Mexico 87106

2057 BURROWS, ROY E., PASEWARK, RICHARD A., & GILLETTE, LOUIS. Visitation and vacation rates of the institutionally retarded. *Training School Bulletin*, 65(3):106-111, 1968.

The partial correlation technique was employed to identify demographic factors associated with visitation and vacation rates at a state training school. Results indicate that when all variables except those immediately considered are partialed out, visitation rates are related directly to length of institutionalization and socioeconomic class and inversely to the resident's present age and distance of legal residence from the institution. Vacation rates are related directly to length of institutionalization, intellectual level, and socioeconomic class whereas an inverse relation prevails between vacation rates and resident's age at admission. All relationships, except those between vacation and visitation rates and length of institutionalization are, however, of small magnitude and of dubious predictive value. Not significantly related to either visitation or vacation rates are resident's sex, parent's marital status, and parents' age at the time of resident's admission. (13 refs.) *Journal abstract.*

Montana State Training School
Boulder, Montana 59632

2058 JONES, M. T. ISLWYN. The subnormal: Train or teach? *Mental Health*, (Spring):42-44, 1968.

In order to keep pace with changing concepts of the potential capacity of the MR, training center methods must be changed. Although there has been some disagreement as to whether health or education authorities should be responsible for these centers, cooperation between the 2 seems the most practical solution. In an example cited, the education department assumed control of staff and supervision while the Medical Officer of Health retained responsibility for the children's health. The new center has developed more as a school than a training center with qualified teachers and better equipment, thereby giving the MR a better chance to develop to their capacities. (No refs.) *E. F. MacGregor.*

No address

2059 ANDERS, SARAH F. New dimensions in ethnicity and childrearing attitudes. *American Journal of Mental Deficiency*, 73(3): 505-508, 1968.

Ethnic and socioeconomic characteristics of attendants responsible for direct-patient care influence the social-psychological environment of a hospital. The relationship between mean permissive scores and personal characteristics of 284 attendants at a state hospital for the mentally ill, indicated that permissive, but not indulgent, care is associated with being female, having a high school diploma, holding a high civil service rating, being married with children, living in an urban community, having additional income and property, and being an Anglo-Saxon Protestant. (6 refs.) - *C. Rowan.*

Sociology Department
Louisiana College
Pineville, Louisiana

2060 PENNY, RUTHANNA. Teaching technicians to teach. *Nursing Outlook*, 16(5):36-37, 1968.

A pilot project is described in which psychiatric technicians taught other ward personnel to give MR patients simple exercises prescribed by the physicians. The psychiatric technicians had themselves been taught these corrective and preventive exercises by qualified physical therapists. Patients are thus given more individual attention and marked improvement in their overall health has been the result. The psychiatric technicians have developed new understanding of patient handicaps and the therapists' goals for the patients. This program has given another dimension to the multiply-handicapped MR patient. (No refs.) - *M. Drossman.*

Porterville State Hospital
Porterville, California 93257

2061 CULLINANE, MARIE M. The blossoming of Ruthie. *American Journal of Nursing*, 68(1):122-124, 1968.

A pediatric nurse elicited socially acceptable behavior from a 9-year-old institutionalized MR problem child by formulating a nursing diagnosis based on the child's physical characteristics and handicaps, and by implementing a planned pattern of nursing care. Her personal example and specific practical suggestions enabled the nursing staff and nonprofessional personnel to expedite the child's socialization and physical development. (No refs.) - *C. Rowan.*

Developmental Evaluation Clinic
Children's Hospital Medical Center
Boston, Massachusetts 02115

2062 WORTHINGTON, MIRIA. Pyrton Training Centre--for mentally retarded children in western Australia. *Journal of Rehabilitation in Asia*, 9(4):13-15, 1968.

Pyrton Training Center is a junior training center which at present consists of administrative and service blocks, a staff center, and a primary training unit. Plans are being made for an activity center and smaller residential units. Most of the residents came from a local long-stay mental hospital and are all severely retarded with IQs ranging from 0-37. The training center's function is to remove these MRs from a hospital to a training setting where they will receive an opportunity to develop to their full potential Emphasis is on training in care, self-help, mobility, communication, and on the development of gross motor skills, finer motor skills, manipulation, eye-hand coordinating activities, and on the learning of household tasks. The occupational therapist plays a large role in training these children, and it is hoped that the center will have many opportunities for research within the occupational therapy department. (No refs.) *B. Parker.*

No address

2063 HAGEN, DUDLEY. The LTSH volunteer. *Lynchburg Training School and Hospital Observer*. Number 28 (November):1, 4-6, 1968.

The Lynchburg Training School volunteers work in cooperation with the hospital's staff and organize projects and activities for the residents. The volunteers provide patients with clothing, toilet articles, costume jewelry, and free alteration services. Residents are remembered on special occasions with gifts, visits, and correspondence. A newsletter written by a volunteer is sent throughout the state and indicates special needs of patients. Volunteers who work in the nursery area help feed SMRs; assist in teaching social manners; aid the nursing service in a summer camping program, and serve as tour guides for visitors. Volunteers help with religious services, handicraft classes, Girl Scout programing, and assist the wheelchair patients. An unusual phase of the program is a Sunday school class of 4- to 8-year-olds who come to the institute and play with residents of their age group. (No refs.) - *S. Half.*

P. O. Box 1098
Lynchburg, Virginia 24505

2064 WIGNALL, CLIFTON M., & MEREDITH, CHARLES E. Illegitimate pregnancies in state institutions. *Archives of General Psychiatry*, 18(5):580-583, 1968.

A national survey completed by 166 administrators of state mental hospitals and schools for the MR with regard to frequency of and attitude toward illegitimate pregnancy revealed that 81% of respondents considered this not be a problem and that the estimated rate of institutional illegitimate pregnancy was only 5/1,000 at risk (unmarried women, age 15 to 44) in state hospitals and 3/1,000 in state schools for MR as compared with 23.4 /1,000 for the United States as a whole. Traditional segregation of sexes and controlled activities have given way to more liberal socializing, but the availability of contraceptive techniques has done much to alleviate staff anxiety about possible pregnancy. Although a personal tragedy when it occurs and a possible source of political controversy, the problem of institutional illegitimate pregnancy is not as significant as previously imagined. (1 ref.) - *E. L. Rowan.*

Colorado State Hospital
Pueblo, Colorado 81003

2065 *Directory of Residential Facilities for the Mentally Retarded*. Washington, D. C. The American Association on Mental Deficiency, 1968, 116 p. $4.50.

This directory provides information about the names, locations, administrators, admission

policies, resident populations, programs, and personnel of private and public residential facilities for MRs in the United States and Canada. Fairly complete data are available on public institutions and on private institutions with resident populations over 20. This national directory should be of interest to government officials concerned with MR at federal, state, and local levels; officials of private agencies for the MR and their families; and professional training institutions. (No refs.) - *J. K. Wyatt.*

2066 *Directory of Institutions for the Mentally Retarded in India.* Chandigarh, India, The Children's Club, Government Institute of Special Education, 1967, 28 p. $0.40.

There are 45 institutions specifically for the MR in India which have an intake capacity of 2,192 patients. Since the incidence of MR is estimated to include more than 600,000 children, this number of institutions is quite insufficient. Indian facilities include: 7 government/state owned institutions, 38 private/voluntary and government aided institutions, 9 residential institutions, 29 non-residential schools, 5 sheltered workshops attached to institutions, 1 independent sheltered workshop, and 9 guidance centers for adults. Institutions included in this directory provide direct services to MR children. Descriptive data for each institution include the name of the superintendent, director, person-in-charge, or principal; staff qualifications; management data; date of founding; capacity; eligibility; facilities; charges; services; crafts; medium of instruction; and areas served. This publication should be of interest to heads of Indian hospitals, medical hospitals, educational institutions, and research centers, and to all those interested in the social welfare of the MR. (No refs.) - *J. K. Wyatt.*

PROGRAMS AND SERVICES

Planning and Legislation

2067 IOWA. *Comprehensive Plan to Combat Mental Retardation, Chapter III.* Progressive Action for the Retarded, 1968, 142 p.

The major objectives of Progressive Action for the Retarded (PAR), Iowa's coordinating agency for the implementation of the more than 400 recommendations for the solution of problems confronting the MR published in *Chapter II: A Report of Iowa's Comprehensive Plan to Combat Mental Retardation*, are: the development of comprehensive services for the MR; the coordination of agencies on a state level to facilitate the establishment of statewide community and regional level services; and the statewide dissemination of information which will increase public understanding of MR and of the need for a complete range of services in the communities of Iowa. Recommendations in education, health services, law, recreation, religion, residential care, vocational rehabilitation and employment, and welfare are designated as implemented, in the process of implementation, not implemented, or as no longer applicable. The Interagency Case Information Service which developed a computerized information exchange among 11 state agencies, had 22,000 case records on file as of May, 1968. Plans for facilities for the MR must emphasize the maximum utilization of existing health, education, and welfare services; coordinated agency planning; the strengthening of ineffective community services; the initiation of new services; and the provision of supportive and supplemental services for MRs. To facilitate planning, coordination, and administration of state services for the MR, 16 multi-county regions have been delineated which will be used to analyze public need, plan policy, and implement programs. (11-item bibliog.) *J. K. Wyatt.*

CONTENTS: Mental Retardation--Definition and Prevalence; The Coordination of Services to the Mentally Retarded; Interagency Case Information Service; Mental Retardation Facilities Construction; Services to the Mentally Retarded in the Department of Social Services; Regionalization; Role of Voluntary Agencies; Statutory Responsibility for the Mentally Retarded in Iowa; and Review of Original Recommendations in Chapter II.

2068 SOUTH CAROLINA. YOUTH TASK FORCE ON MENTAL RETARDATION. *Dialogue, Service and Leadership*. Columbia, South Carolina. The Governor's Interagency Council on Mental Retardation Planning, 1968, 45 p.

The South Carolina Task Force on Youth and MR was organized in 1966 to develop the role that youth could play in combating MR. The specific purposes were: to develop future leadership, manpower support, and public awareness; to make young people aware of areas where they can be of service; to develop new ways to increase public awareness; to recruit other young people into MR and related fields; to obtain information about the state's existing youth groups and involve them in projects for the MR in their communities; and to develop guidelines about what young people need to know to work with MRs and to organize training workshops to provide such instruction. The task force members participated in a program of orientation and acceptance, data collection, projects promotion, and reporting. Their dialogue resulted in recommendations, suggestions for services, and leadership direction. The major recommendations were in the areas of manpower training, public awareness, interagency cooperation, and youth group activities. (No refs.) - *J. K. Wyatt.*

2069 PETERSON, ADEANA F. Social workers in the comprehensive mental retardation planning and implementation process. In: American Association on Mental Deficiency. *Social Work Papers 1967*. Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 6. p.

A 3-year task force study by community planning committees evolved a plan for the development of comprehensive services for the MR in Michigan. Education, vocational rehabilitation, employment, social welfare services, prevention, research, health services, manpower and training are problem areas that can be met by coordinated inter-departmental and inter-agency planning which will make generic services available to the MR. It is often the responsibility of the social worker to initiate inter-agency action for development and utilization of programs and services for the MR. (No refs.) - *S. Half.*

No address

2070 WILBUR, ROSS T. A state social welfare program geared to the needs of the mentally retarded: A revolution in the social milieu updating public welfare--Five years after the 1962 service amendments. In: American Association on Mental Deficiency, *Social Work Papers, 1967*. Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 6 p.

The 1962 Service Amendments to the Social Security Act provided millions of dollars for research to update medical practice. Elementary and secondary education has also received extensive financing. Iowa's public welfare program under the Iowa State Department of Social Welfare increased its responsibility for providing leadership in research; cooperation with the board of control of state institutions which operate 2 hospital-schools for MRs; leadership of the Task Force on Welfare; and participation as a member agency on the Board for Iowa's Comprehensive Plan for Mental Retardation. Three main concepts of public welfare are emphasized: service, continuity of care, and change of focus from hospital to community care. The following basic services are public welfare's responsibility: case finding; referral for diagnostic services; development of long-term plans; provision of financial assistance; utilization of homemaker services; provision of day-care and foster family care placement services; assistance in institutional application procedures; participation in local vocational and other training or placement plans; and provision of protective services for MRs at all ages. (No refs.) - *B. Parker.*

Iowa State Department of Social Welfare
State Office Building
Des Moines, Iowa 50319

2071 Vocational Education Amendments 1968: Public Law 90-576. *Programs for the Handicapped*, Newsletter of the U. S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69(3):1-5, 1969.

The 1968 amendments to the Vocational Education law updates and extends important provisions for the handicapped. Ten percent of each state's funds marked for State Planned Programs must be appropriated for handicapped persons. A new definition for handicapped includes persons who are MR, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled,

or have health impairments which require special education and related services, and broadens the number of people who may qualify for aid. National and state advisory councils will have persons with experience in the training and education of the handicapped as members. This will assure that the handicapped will not be denied the opportunity for vocational training or retraining. (No refs.) *M. Drosman.*

2072 Projects to Advance Creativity in Education, Title III: Supplementary Centers and Services for Education of Handicapped Children. *Programs for the Handicapped*, Newsletter of the U. S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 68(14):1-7, 1968.

New educational programs for the handicapped are essential if improvements are to be made in the educational system for these children. Title III of the Elementary and Secondary Education Act of 1965, was amended to authorize the use of 15% of each state's allotment and at least 15% of the discretionary funds of the United States Commissioner of Education for exemplary educational projects for the handicapped. The projects will vary--some will be devoted solely to the handicapped and others will be part of regular school programs which must have special provisions, facilities, and trained personnel for the handicapped children. Innovative and exemplary programs include pilot projects for demonstration as well as time for conferences and workshops for the purpose of stimulating the adoption of new and improved approaches. Illustration of a project for MR is given which provides diagnostic services, preschool training, special education classes, activities center, and a sheltered workshop. (No refs.) - *M. L. Wiltshire.*

2073 MACKIE, ROMAINE P. The handicapped benefit under compensatory education programs. *Exceptional Children*, 34(8):603-606, 1968.

Compensatory education programs, which provide billions of dollars to improve the education of culturally disadvantaged children, also aid handicapped children by providing funds for reading and speech programs, diagnostic services, and teaching equipment. Special education benefits not only children with speech problems and MR, but also environmentally handicapped children. Broader use of compensatory education would provide for the environmentally disadvantaged within the general school system and reduce the number of children in need of special classes. (1 ref.) - *C. Rowan.*

Division of Compensatory Education
U. S. Office of Education
Washington, D. C.

Community Programs

2074 OTTENSTEIN, DONALD, & COOPER, SAUL. A community mental health program for mental retardation: Community and planning aspects. *Journal of the American Academy of Child Psychiatry*, 7(3):536-547, 1968.

Among the comprehensive services offered by the South Shore Mental Health Center in Quincy, Massachusetts, are model programs in preschool nurseries and occupational training for the MR developed in conjunction with parents' groups and state agencies. The 5 preschool nurseries serve as part of an educational program which extends from extensive diagnostic evaluation through follow-up in special education classes in public school. The Occupation Training Center serves to evaluate and train retardates for placement in the community or the center's sheltered workshop. Extensive community ties and an ongoing education program have helped the center develop community and staff support for the integration of the MR into the treatment program, and have encouraged exploration of new areas of service such as early detection of MR, a half-way house in collaboration with a state school, and a day-care center, emergency care, and special education for retardates. (No refs.) - *E. L. Rowan.*

Beaverbrook Guidance Center
Belmont, Massachusetts

2075 FREMONT, ALBERT C. Utilization of community services: Referral and consultation. *Pediatric Clinics of North America,* 15(4):989-1004, 1968.

Community services should be organized with a plan of action and professional efforts should be coordinated to provide more effective care for MRs. Communication among physician, parent, and community service, should help relieve parental anxiety. The physician is required to view MRs not only as patients, but as community members who must learn to function within the community. A compilation of community resources and a 6-point program of comprehensive services to MR are presented. Referral clinics should send follow-up reports concerning treatment and management, and provide the consultees with ongoing support and suggestions for future management. Physicians are encouraged to handle those cases of MR which they are capable of handling, and to be critical of referral. The role and responsibilities of the consultant and the consultee should be made clear from the time of the initial referral. (18 refs.) - *L. E. Clark.*

Division of Mental Retardation
Department of Health, Education,
and Welfare
Washington, D. C.

2076 JASLOW, ROBERT I. A modern plan for modern services to the mentally retarded: Expanding community services to the mentally retarded. *Clinical Pediatrics,* 7(2):80-82, 1968.

The United States Division of Mental Retardation and the Public Health Service have devised a 6-point model program to coordinate community resources in order to give the 6,000,000 MR members of our society a share of adequate services. The model program is based upon these ideas: every generic (health, welfare, education, rehabilitative, or employment) agency should be opened to the MR; every person who serves in health, welfare, educational, rehabilitative, or employment capacities should have basic training in MR; specialized services and agencies should also be available for the MR; every generic agency should have an MR specialist on its staff; standards should be developed for services and training; and a coordinating mechanism with the community should be established. Many communities have 1 or more elements of such a 6-point program and as these model programs are completed, the MR in the community will more nearly receive proper and equitable service from community agencies. (2 refs.) - *S. Half.*

Division of Mental Retardation
4040 North Fairfax Drive
Arlington, Virginia

2077 SMITH, G. KEYS. The handicapped teenager. *Rehabilitation in Australia,* 5(3):4-9, 1968.

The establishment of handicapped children's centers and group clinics to provide adequate treatment for individuals with multiple disabilities, congenital abnormalities, developmental disorders, and trauma is increasing. In a child's life, the years from 13 to 19 are crucial because of the transition from school to employment and community living. The handicapped youngster in many countries is receiving comprehensive diagnostic and treatment services; however, the handicapped teenager still has problems because of insufficient and inadequate educational facilities, and a lack of coordination of available treatment services and medical supervision in the schools. These children need incentive, stimulating educational experiences, better motivation, and effective preparation for skilled employment; nevertheless, surveys reveal that handicapped young adults, often do not receive adequate educational assessment of their abilities. A definite shortage of trained personnel with adequate knowledge in the field of employment exists. Jobs are not plentiful for handicapped teenagers and they frequently become disheartened by continued rejection. Handicapped children should be exposed to recreational activities, appropriate hobbies, socialization, reading, and the arts. Wholesome interpersonal relationships need to be established and constructive guidance and counseling in sex and marriage during the maturation years are of vital importance. (No refs.) - *S. Half.*

Royal Children's Hospital
Melbourne, Australia

2078 KITCHIN, C. HARCOURT. The mentally subnormal--a study of confusion. *Nursing Mirror,* 126(10):8-9, 1968.

Coordination of services for the MR is an extremely complex problem; there are 4 major resources to assist the mentally handicapped --physicians, hospitals, local agencies, and voluntary organizations. Since these generally function independently, there is a

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need for a comprehensive collective service. The purpose should be early detection, diagnosis, treatment, training and rehabilitation, social awareness, and residential placement when indicated. Integration of resources for the MR on a practical basis could be quite feasible, could aid in alleviating duplication of services, and finances could be budgeted and allocated more wisely. A multidisciplinary assessment service is indicated and it is up to those experienced and interested in meeting the overall needs of the MR to help bring about the most effective and productive means. (No refs.) - *S. Half.*

No address

2079 ADAMS, MARGARET E. Problems in management of mentally retarded children with cerebral palsy. *Cerebral Palsy Journal,* 29(2):3-7, 1968.

Complex problems are urgent and ever-present in the care of the MR child with CP. Inadequate medical and social services leave the burden upon the family which often threatens the well-being of the entire family. Skilled counseling may be of help to offset some of the psychological reactions to the extreme helplessness of the MR child but practical domicilary services to relieve the mother through homemaker and home-aide services are urgently needed. Few are available. Volunteer good neighbor services to baby-sit are also helpful but are also often not available. More adequate clinical study of the child's functioning and prognosis for future development is needed and while this seems an expensive program of care, it is actually necessary to the well-being of the total family. (14 refs.) - *M. L. Wiltshire.*

Jewish Hospital
Brooklyn, New York

2080 ROBINSON, DEREK. Effectiveness of medical and social supervision in a multiproblem population. *American Journal of Public Health and the Nation's Health,* 58(2): 252-262, 1968.

A well-child clinic was established within a 1,200-family housing project in an economically depressed urban area in order to provide supervisory care for all preschool children and their families; however, it was utilized as a treatment facility in medical and social crises. Only 1/2 of the eligible children ever came to the center, and the majority of these were for routine inoculations. There was a significant relationship between the length of prenatal care of the mother and postnatal care of the infant. Significant medical problems were common but incidental to the mothers' anxiety about obvious physical defects, behavior, feeding problems, or discipline. Cases of mental and neurologic retardation were detected in infancy although follow-up suggested that predictions of severity had been overestimated. Attempts to refer patients to other social and/or medical agencies were largely unsuccessful and 1/2 the problems resolved spontaneously while awaiting action. The reluctance of families to seek follow-up and the difficulty in mobilizing other social agencies require critical analysis in order that the scarcity of personnel and facilities in such a multiproblem community clinic may be used to best advantage. (7 refs.) - *E. L. Rowan.*

Division of Adult Health
Massachusetts Department of Public Health
Boston, Massachusetts 02130

2081 HERSCH, CHARLES. Child guidance services to the poor. *Journal of the American Academy of Child Psychiatry,* 7(2): 223-242, 1968.

The provision of mental health services to poor families requires a revision of the traditional child guidance model of service and consideration of the magnitude of neuropsychiatric and psychosocial disorders among poor families, the multiplicity of problems within a single family, the disengagement of traditionally organized and oriented clinics from the poor, and the alienation of the poor from the services available. Besides gaining special understanding of the culture of poverty, clinics must be made available in poor neighborhoods, hold to a loose schedule, coordinate comprehensive services, and augment the staff with supervised subprofessionals and volunteers. Ongoing programs in Cambridge (Massachusetts), Philadelphia (Pennsylvania), and New York City demonstrate the feasibility of this approach. (32 refs.) *E. L. Rowan.*

Cambridge Mental Health Center
Cambridge
Massachusetts

2082 LOBACH, KATHERINE S. Comprehensive health care program for poor children at the Albert Einstein College of Medicine in New York City. *Developmental Medicine and Child Neurology*, 10(3):784-788, 1968.

Enactment of Medicaid and Medicare legislation is having far-reaching effects on health care for the aged and the poor. It provides guidelines and finances for development of comprehensive health care programs for those who qualify. The program at the Albert Einstein College of Medicine is based on the assumption that healthier children are the result of health care provided on a continuing basis by a qualified and competent health team. The mechanics of such an operation, along with the functions of the various team members and consultants, are described at length although all the details have not yet been worked out. There are 2 aspects to be considered in assessing this program: compilation of statistics on operations of each day; and evaluation of the impact of the program on the actual health of the children. Although assessment may be difficult, it should be remembered that the primary aim of the program is to give service. (No refs.) *E. R. Bozymski.*

Bronx Muncipal Hospital Centre
Bronx, New York 10461

2083 SALTCOATS AND DISTRICT BRANCH. *Journal of the Scottish Society for Mentally Handicapped Children*, 3(2):5-7, 1968.

The Ayrshire Branch of the Scottish Society for Mentally Handicapped Children was formed in 1961 and a major goal has been to have MR adults accepted by the community. Vocational training, recreation, and social affairs are all parts of the program of the branch. Public awareness and acceptance of the MR is expected to grow in the geographical area served by the Ayrshire Branch. (No refs.) *M. Drossman.*

No address

2084 FAIRBROTHER, PAULINE. We want hostels. *Parent's Voice*, 18(2):12-13, 1968.

Problems within the family of an MR adult, such as restrictions on parental freedom and leisure and the isolation of the patient from his contemporaries, can best be solved by hostels. Unlike community programs (junior training centers, adult workshops, special care units, and nursery groups) which provide only daytime activities or mental subnormality hospitals which stunt individual personality development, the centrally located hostel of 30 members provides a permanent home, continuation of community activities, pleasant home visits, personality retention, formation of friendships, privacy and possible limited self-reliance. (No refs.) - *C. Rowan.*

2085 AMERICAN ASSOCIATION ON MENTAL DEFICIENCY. *Social Work Papers 1967.* Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967. Mimeographed.

Social work papers covering a wide range of subjects are compiled and presented in book form. The papers include topics on public welfare and MR, work with the parents of an MR child, group methods in work with the MR and family, and interdisciplinary relationships. Specifically, individual case reports, community programs, social workers and their role in the field of MR, are discussed by well known professionals in social work. This book should be of interest to social workers, sociologists, psychologists, and other persons working in the field of community services for the MR. (44 refs.) - *M. Drossman.*

CONTENTS: A Child Welfare Program Meets the Challenge of Service to the Retarded Child (Braik); A State Social Welfare Program Geared to the Needs of the Mentally Retarded (Wilbur); Aid To The Totally Disabled:An Observation Of Client's Needs And Agency Service (Segal); Public Welfare And Mental Retardation: Social Workers In The Comprehensive Mental Retardation Planning And Implementation Process (Peterson); Some Random Views (Olshansky); Mental Retardation As A Family Problem (Begab); Group Processes With Parents Of Retarded Children (Mandelbaum); Developing Community Group Work Services: The Learnings From A NIMH Project (Schwartz); The Use Of Social Group Work To Prepare Residents For Community Placement (Ferguson); Interpersonal Strategies Of The Mildly Retarded Adolescent--A Game-Model View (Shulman); Los Angeles City School Districts Special Education Branch (Leichman); and Basic Issues and Procedures in Interdisciplinary Relationships and Practices: Psychology (Weaver).

2086 SCHWARTZ, ARTHUR L. Developing community group work services: The learnings from a NIMH project. In: American Association on Mental Deficiency. *Social Work Papers 1967.* Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 7 p.

A demonstration project with community group work services and recreational activities as its prime objectives, with funds provided by the NIMH, and dealing with the MR and their families has demonstrated that many of the generic group work concepts used with normal children were quite useful with the MR. The MR were accepted in the community centers as belonging to the general population being served in regular programed activities and the normal group became more knowledgeable and understanding. Successful and beneficial programs for the MR in group service centers can be implemented without extensive training and professional staff; however, appropriate case finding and recruitment are necessary ingredients for the success of the program. The group work agency can effectively cope with a broad scope of problems brought by the families and the families of the retarded were able to relate to the community center staff. (No refs.) - *S. Half.*

No address

2087 BRAIK, ADELINE. A child welfare program meets the challenge of service to the retarded child. In: American Association on Mental Deficiency. *Social Work Papers 1967.* Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 6 p.

A foster-home program for the MR, supported by the Florida State Department of Public Welfare, evaluates each child referred on the basis of social, medical, and psychological factors, and if indicated, assumes responsibility for their foster care. Referrals come from clinics, pediatricians, psychologists, social agencies, and families. If the child is to remain at home, a home stimulation program is begun. Currently the program has 130 children in foster homes. A lack of resources such as nursery schools, kindergartens, vocational opportunities, psychiatric help, and homemaker services hamper effective care of the MR child. Nevertheless, the social worker can act as a liaison person between parents and foster parents, school, social agencies, and the clinic and offer knowledge of the problem of the MR to the public. (No refs.) - *B. Parker.*

No address

Protective Services

2088 Declaration of general and special rights of the mentally retarded. *Parent's Voice,* 18(4):4, 1968.

The Congress of the International League of Societies for the Mentally Handicapped adopted a declaration of rights regarding MR. The MR have: the same basic rights as other citizens of the same country and age; the right to proper medical care and physical habilitation without regard to ability to pay; the right to economic security and a decent standard of living; the right to a home and participation in community activities; the right to a qualified guardian, if needed; the right to protection from exploitation and abuse; and proper safeguards of their rights when it is necessary for these rights to be exercised for them by others. (No refs.)
E. F. MacGregor.

2089 BAVIN, J. T. R. Contraceptive loop for subnormals. *Mental Health,* (Spring): 31-32, 1968. (Letter)

In order to help with the patient's clinical problems, assist in early discharge of inpatients, and prevent the admission of outpatients, contraceptive loop treatment is offered to subnormal girls. The treatment is optional and both the girls and their nearest relative get a detailed explanation and signed consent forms are necessary. Follow-up psychiatric help is essential to a more mature development of the patient and should result in a decreased likelihood of promiscuity. (No refs.) - *E. F. MacGregor.*

Leavesden Hospital
Watford
England

2090 SEGAL, ARTHUR. Aid to the totally disabled: An observation of client's needs and agency service. In: American Association on Mental Deficiency. *Social Work Papers, 1967.* Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 8 p.

The Aid to the Totally Disabled (ATD) division of the San Francisco Department of Social Services surveyed the area to locate every MR adult who has no independent income and is considered permanently disabled. The area covered included North Beach, China Town, and the Tenderloin districts. It was found that there are adults who are eligible for ATD but who do not know that this service exists or do not know how to apply. Also some persons receive financial assistance but not casework services because of lack of time on the social worker's part. Diagnostic evaluations to determine eligibility are often misleading and mild retardation may not be observed if there is an obvious physical disability. A lack of knowledge about MR is a large factor contributing to lack of needed services. (6 refs.) - *B. Parker.*

University of California
School of Social Welfare
3507 Bissell Avenue
Richmond, California

2091 ALLEN, RICHARD C. Legal norms and practices affecting the mentally deficient. *American Journal of Orthopsychiatry,* 38(4):635-642, 1968.

Field investigation of both civil and criminal laws affecting the MR was carried out by the Institute of Law (George Washington University) in a representative sample of jurisdictions (states) within the United States. The primary purpose of civil law is to provide protective services consistent with the safeguarding of fundamental human rights, yet, protective services do not protect when the needs of the retardate and the services of an institution are not complementary. Many institutions have inadequate staffs and facilities yet alternatives to institutionalization are seldom considered and custodial care is substituted for treatment. Inappropriate or unnecessary measures such as involuntary sterilization are often employed. The language of the law about MR is confused by the multiplicity of descriptive phrases and compounded by multiple overlapping jurisdictions and agencies. Criminal proceedings are often carried out without proper attention to the competency or responsibility of the accused. Ten percent of a sample of prison inmates were known to be retarded yet no differential treatment was employed. The dignity and worth of the retardate and his fundamental rights are inadequately protected in the United States. (7 refs.) - *E. L. Rowan.*

Institute of Law, Psychiatry
and Criminology
George Washington University
Washington, D. C.

2092 BAZELON, DAVID L. The law and the mentally ill. *American Journal of Psychiatry,* 125(5):665-669, 1968.

A chief judge of the United States Court of Appeals as a representative on the American delegation in Russia was impressed with the Soviet mental health system. In criminal cases, Soviet law provides that the S must undergo neurological, psychological, medical, and psychiatric examination, and Soviet psychiatrists are empowereed to render precise and definite recommendations on criminal responsibility. In civil commitments, the Russian approach is usually institutionalization as it is felt that the sooner an individual receives needed treatment, the sooner he will return to work and be of value to the state. Positive aspects of the Soviet mental health system are early intervention in health problems, grave concern for speech impairments, an outpatient program that provides for housing, employment, and other basic needs while the individual continues to receive recommended treatment. We should re-examine our own medical-legal system as to what we are attempting to accomplish and the methodology involved. (No refs.) - *S. Half.*

United States Court of Appeals
United States Court House
Washington, D. C. 20001

Religion

2093 PETERSON, DWAYNE DOUGLAS. A study of certain Colorado clergymen's attitudes toward and knowledge of the mentally retarded. *Dissertation Abstracts*, 29A(3):825-826, 1968.

A survey of 262 clergymen in Colorado to determine attitude toward MR revealed that clergymen with more positive attitudes were likely to: have had contact with the MR; have had 4 or more years of college with a degree; have had 1 to 5 years of ministerial experience; and have had training in pastoral counseling. However, such clergymen would not necessarily have any greater knowledge of MR. (No refs.) - *M. Drosman.*

No address

PARENTS AND FAMILY

2094 O'CONNOR, WILLIAM A. Patterns of interaction in families with high adjusted, low adjusted and retarded members. *Dissertation Abstracts*, 28A(8):3265, 1968.

Ratings of the interaction patterns of families in which the oldest male child was either high adjusted (HA), low adjusted (LA), or MR (RM) revealed that RM families were rated between HA and LA families on most measures, and that on intra-family scales, MR children were higher than HA or LA children in covert power and in number of emotional messages received. A modified version of Strodtbeck's "revealed differences" technique was used to obtain interaction measures in 8 HA, 8 LA, and 8 RM families. The selected measures reflected long standing total unit functioning and intra-family structure. HA families were higher in productivity, utilized emotionality most effectively, and were able to tolerate the most amount of conflict while maintaining high cohesion. LA families were lowest in productivity, and were least effective in their use of emotionality. LA parents received the highest ratings on amount of overt power. (No refs.) - *J. K. Wyatt.*

No address

2095 VULPE, SHIRLEY GERMAN. Training parents in the management of young retarded children. *Mental Retardation (Canadian ARC)*, 17(3-4):11-16, 1967-68.

As a primary health problem today MR is approached realistically by the Home Care Program from Montreal Children's Hospital by providing support to parents of MR children; helping parents with care and training; and reducing frustration experienced by parents. Essential for the MR child to remain in society is appropriate social behavior and perceptual-motor ability. In investigating the home, 4 areas are given special attention: the routine of the family, the structure of the household, the equipment of the home for child and family, and the behavior of the child in the home. A skill assessment battery has been developed which facilitates the planning of home programs from infancy to 5 years mental age. All information gleaned from the assessment and home study are combined and the knowledge is used to try a feasible plan to be used in the care and management of the child in the home. (No refs.) *B. Parker.*

Montreal Children's Hospital
Montreal, Quebec, Canada

2096 BEGAB, MICHAEL J. Mental retardation and family stress. *Clinical Proceedings of Children's Hospital of the District of Columbia,* 24(2):50-65, 1968.

The basic needs of the MR are vital and depend primarily upon the family unit. The retarded individual can develop to his maximum capacity only if the parents receive help, and guidance in the everyday management of stress situations of their retarded youngster. The assessment of stress in the family life of a retardate must consider such factors as: the parent's childhood years, financial status, level of education, sociocultural heritage, religion, and the adequacy of their marital relationship. Common reactions to MR by some parents are: feelings of self-doubt and guilt, social withdrawal and isolation, denial, frustration, gross instability, and over-protectiveness. Interpretations to parents can be quite effective if done by a skilled, sympathetic, and trained individual whose goal is to assist them in better understanding their child's handicap. Participating in local parent groups can be of help and relatives should likewise recognize the overall dynamics of the MR child in a family group. The cause of a child's retardation is a key factor in the psychological adjustment of the parents and genetic counseling may be of value. If the community is educated regarding MR, this will lessen the social stigma that the retardate and his family frequently encounter. (No refs.) - *S. Half.*

National Institute of Child
Health and Human Development
Bethesda, Maryland

2097 PRABHU, G. G. The participation of the parents in the services for the retarded. *Indian Journal of Mental Retardation,* 1(1):4-11, 1968.

There is a need for an intensive educational and guidance program for parents of MRs in India. Three hundred and twenty MR children (197 males and 123 females; CA 3-15 yrs) were evaluated to ascertain degree of impairment and level of functioning. Parents were interviewed on the understanding of their child's presenting problems and in 1/3 of the cases were aware of intellectual limitations of their child, in 2/3 physical symptoms were their prime concern, and in some, parents were unaware of any problems. A few families were aware of the delayed development, but unfamiliar with available facilities to meet their child's needs. Psychometric testing revealed 182 children scored an IQ between 51 and 70, and 138 had an IQ below 50. Parents of the severely deficient accepted the presence of the retardation more than those of the mildly retarded. There was found to be a lack of interest on the part of many clinicians which prevented early detection and training of the MR. A need exists for more professional services, more interest on the part of trained workers in the field, and a better understanding by the parents of the problems. Professional counseling services should be available to families and should emphasize a more realistic approach in terms of everyday management and training. Parental educational groups could be formed whereby scientific knowledge and pertinent information might be exchanged. (4 refs.) - *S. Half.*

Department of Psychiatry
All India Institute of Medical Sciences
New Delhi 16, India

2098 MENOLASCINO, FRANK J. Parents of the mentally retarded: An operational approach to diagnosis and management. *Journal of the American Academy of Child Psychiatry,* 7(4):589-602, 1968.

Experience gained in counseling parents of MR children (946 parental pairs over an 8-yr period) has resulted in the delineation of 3 family crisis responses: novelty shock crisis, crisis of personal values and reality crisis, and the proposal of specific treatment plans for each. The crucial element in novelty shock is not MR itself, but the demolition of parental expectancies with the birth of an abnormal child. This must be met with support and information about the condition and expectations, and long-range planning for the child. Crisis of personal value stems from the destruction of over-determined parental expectations for their child and may result in chronic grief requiring psychotherapeutic intervention and clarification of values. Reality crisis follows from the introduction of a handicapped child into a family with limited resources and may be quelled by professional understanding and support and the use of available community services. This multifaceted approach to family crises with MRs is most beneficial to the retardate, his family, professional workers, and the society which avoids increased and unnecessary institutionalization. (29 refs.)- *E. L. Rowan.*

Developmental Evaluation Clinic
University of Nebraska
College of Medicine
Omaha, Nebraska 68105

2099 ZARNARI, OLGA. *Group Work with Parents of Mentally Retarded Children.* Athens, Greece, Center for Mental Health and Research, 1967, 96 p.

A group guidance program conducted by the Special Education Section of the Child Guidance Clinic (Athens, Greece) for parents of children over 6 years of age with IQs in the 30 to 70 range had considerable positive effect on the development of the children. The program was conducted by the director of the Special Education Section and the Section social worker. Meetings were held on a biweekly basis over a 9-month period. The main problem areas that arose for consideration were: emotional and social stress related to the incidence of MR; lack of information concerning the etiology and behavior manifestations of MR; the effects of unaccepting parental feelings and attitudes on the children's development; inadequate family handling of an MR child; and a need for the promotion of services for MRs by an organized group. Parent efforts resulted in the establishment of the Greek Association of Parents of MR Children and in the involvement of this organization in the "Stoupathion" Center of Special Education. Needed developments in the field of MR in Greece include special education programs which are a part of a total service program; social work services in conjunction with care, education, or training programs; special schools and special classes in regular schools; and publicly supported, community-wide programs of care. (41-item bibliog.) - *J. K. Wyatt.*

CONTENTS: The Family and the Mentally Retarded Child; The Program of Group Guidance; and Analysis of Group Records.

2100 MANDELBAUM, ARTHUR. Group processes with parents of retarded children. In: American Association on Mental Deficiency. *Social Work Papers, 1967.* Social work session at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 17 p.

Isolation and loneliness are 2 of the biggest problems parents of MR children face. The year 1960 was the beginning of the group formation centered around concern for the retarded child in the family. Each member talks about his individual feelings and thoughts, thus giving support to others with the same problems. Parent attitudes toward MR children range from ignorance to shame to jealousy and envy, with very few showing initial acceptance of the child's condition. The social worker becomes a representative of the outside world trying to guide the group toward examining their fear and resistance, and to finding their inner strength. (6 refs.) - *B. Parker.*

The Menninger Foundation
Topeka, Kansas

2101 ZUCKERBERG, HARVEY D., & SNOW, GORDON R. What do parents expect from the physician: A resume of recent opinions. *Pediatric Clinics of North America,* 15(4): 861-870, 1968.

The physician must relate to both parents and recognize their uniqueness, needs, attitudes, and capacities; he should allow sufficient time for a thorough exam, be objective in a kindly fashion, be sympathetic, treat parents with dignity and respect, and be supportive. The physician should cope with parental fears and anxieties; he should offer direct suggestions and encourage the parents to enjoy the child. Parents expect accurate information of diagnostic procedures performed, what conclusions are available from these, and what the general prognosis for the child is. The physician has a continuing need to reexamine the child periodically, and to assist the parents in obtaining community services. (12 refs.) - *L. E. Clark.*

363 South Dearborn Street
Chicago, Illinois

2102 NATIONAL ASSOCIATION FOR RETARDED CHILDREN. *The ABC's of Quackery and Sound Medical Care: A Guide for Parents of the Mentally Retarded.* New York, New York, January 1968, 8 p.

Parents of an MR child can alleviate doubts and avoid exploitation by "quacks" by carefully choosing a qualified family physician or pediatrician, by obtaining a thorough diagnostic evaluation of the child, and by cooperating with a planned education program suited to the child's individual needs. Serious doubts concerning treatment should be discussed in consultation with another qualified practitioner or by inquiry to the American Medical Association's Department of Investigation. Quacks prey on parental emotion with unfounded promises and false hopes and, besides draining finances, may inflict added parental sorrow as medical intervention is postponed. (No refs.) - *C. Rowan.*

2103 SQUIRES, D. Making a life for my children. *Parents' Voice*, 18(4):13-14, 1968.

A mother with 2 mentally handicapped children details some happy experiences which she and her children shared despite their handicaps. Her success was based on tolerance, patience, understanding, and managing her children as normally as possible. Handicapped children should be exposed to and mix with other more capable children as frequently as possible; substantial gains will be made by both sides in this give-and-take situation. She found through experience that her MR children were able to adequately participate in a Sunday school program, Pathfinder class, Brownies, recreational and play activities, and they even learned to swim and play tennis. She and her children enjoyed outings and picnics. One person's experiences reveal that there can be fun for a handicapped child if parents will assume the initiative and have continued hope. (No refs.) - *S. Half.*

No address

2104 ROGERS, EVELYN. Living with and accepting the brain injured child: A parent's viewpoint. *Academic Therapy Quarterly*, 3(3): 184-186, 1968.

Parents' shock of learning that their child is brain-injured and their readjustments are accompanied by their self-examination as to how they could be most helpful in the light of their present understanding. Their 6-year-old boy now attends a special school 5 1/2 days/week; Saturday, he attends until noon when his father takes him to a restaurant for lunch, a treat which the child looks forward to each week. He is able to tell from the clothes he wears what activities are expected from him--pajamas mean bedtime, school clothes mean school, play clothes mean play, and special clothes mean Sunday school. Previous negativistic behavior has changed to cooperative behavior; he responds to the family with affection. (No refs.) - *M. L. Wiltshire.*

New Jersey Brain Injured
Association
North Dover, New Jersey

2105 NATIONAL ASSOCIATION FOR RETARDED CHILDREN. *Careers in the Field of Mental Retardation.* New York, New York, 1968, 36 p.

The lack of trained personnel in the occupations specifically oriented toward MR threatens the success of the United States' campaign to construct a workable environment for MRs and to discover how MR may be eliminated in the future. A comprehensive program to meet the needs of all MRs, their parents, and society should include community diagnostic-treatment clinics, home visit programs, parent counseling, day-care services, nursery classes, special education and training centers for school-age children, religious education, recreation facilities, vocational services and training programs for MR adults, independent living centers, residence centers, half-way houses, provisions for protection and guardianship, and research into the causes and prevention of MR. Careers in the field of MR which require a graduate degree and experience in the area are diagnostic and evaluation clinic director, state planning coordinator, state planning director, research scientist, and institution superintendent. Medical and paramedical personnel who work with MRs include dentists, dental hygienists, public health nurses, pediatricians, psychiatrists, social workers, and clinical psychologists. Careers which require special qualifications in the fields of education, psychology, and/or social work include child development specialists, special education directors, principals of day schools or residential educational programs, school social workers, school psychologists, vocational rehabilitation counselors, and special education teachers. MR programs use the services of music, occupational, physical, recreation and speech therapists who have specialized training in their fields. Positions as information specialists are open to persons with a background in journalism and science. Occupational fields which do not require a college education are child-care attendant, cottage parent, sheltered workshop foreman, licensed practical nurse, nurse aid, and occupational therapy aid. Financial assistance for persons interested in obtaining training for careers in MR is available from a variety of sources. (No refs.)
J. K. Wyatt.

2106 ZOOK, LINN, & UNKOVIC, CHARLES. Areas of concern for the counselor in a diagnostic clinic for mentally retarded children. *Mental Retardation (AAMD)*, 6(3):19-24, 1968.

Painful reality must be confronted before the retarded child and his family can make effective progress. The clinic counselor must honor his responsibility to present such reality, but in a way that helps parents recognize, accept, and cope with the child and their own emotional reactions. Obvious counseling considerations may be overlooked, such as the presence of conscious but hidden objections, and selective perception which distorts diagnostic interpretations. Pertinent concrete information can further reality acceptance, and brief nonstructured observations may provide excellent representation of what occurs in the parent-child relationship. Illustrative case material is presented. This paper is intended to be of help to the counselor functioning in a diagnostic clinic for MR children. The writers have chosen to discuss certain areas of concern that will aid both the beginning and the experienced counselor in becoming more effective in his contacts with the child and his parents. Counselor, in the authors' definition, could be construed to mean a professional person such as a pediatrician, psychologist, psychiatrist, or social worker who is employed in a diagnostic clinic for the MR. (3 refs.) *Journal abstract.*

Diagnostic and Evaluation Clinic
for Retarded Children
Toledo, Ohio

2107 O'HARA, J. The role of the nurse in subnormality: A re-appraisal. *Journal of Mental Subnormality*, 14(2):19-24, 1968.

As public attitude toward the MR has evolved from reluctant custody to forcible detention to the present "open-door" policy, so the role of the nurse in a mental deficiency institution must undergo a similar evolution from stringent disciplinarian to concerned teacher. Basic general nursing duties should be the responsibility of attendants in order that the primary concern of the nurse might include development of patients' latent abilities, the fostering of patients' independence, and involvement in patients' emotional reactions. Examination and certification in Mental Subnormality Welfare by the Social Science department of a university would raise the status and motivation of nurses who care for the MR. (20 refs.) *C. Rowan.*

Monyhull Hospital
Birmingham 30, England

2108 PENNINGTON, MAVIS. Nursing students work with the mentally retarded. *Nursing Outlook*, 16(5):38-39, 1968.

A comprehensive teaching program preparing students to work effectively with the MR child, his family, and community agencies is presented. This coordinated-structured approach has enabled the public health nurse to do early casefinding, be aware of growth and developmental impairments, and to utilize the services of diagnostic clinics for the MR, and to follow-up with appropriate referrals to meet the needs of the MR child. The public health nurse assists the handicapped youngster in developing self-help skills, developmental tasks, and she provides guidance to families in the overall care and management of an MR child. Evaluations are made by the public health nurse of her experiences and new information, ideas, and techniques are shared with other nursing students and staff. (No refs.) - *S. Half.*

Sacred Heart Dominican College
Houston, Texas

2109 BOLIAN, GEORGE C. The child psychiatrist and the mental retardation "team": A problem of role definition. *Archives of General Psychiatry*, 18(3):360-366, 1968.

The role of the child psychiatrist in the multidisciplinary atmosphere of the MR team overlaps those of other team members in the biological, behavioral, experiential, and social spheres. With the pediatrician and pediatric neurologist, he is interested in the biological correlates of behavior but goes beyond this in his detailed behavioral observation. In viewing the child and his family, the psychiatrist emphasizes the biological-experiential-behavioral end of the spectrum while the social worker emphasizes the social-experiential-behavioral. The clinical psychologist's concern for the stages of cognitive development and intellectual performance and the special education teacher's behavior shaping through operant

conditioning differ only in theoretical persuasion from those of the child psychiatrist in his approach to the child. With his multifaceted background the child psychiatrist must focus on the interrelationships of the disciplines dealing with the retarded child and therefore, he requires a strong research orientation to select the most relevant variables and relate them. (18 refs.) *E. L. Rowan.*

University of Washington
School of Medicine
Seattle, Washington 98105

2110 PEARSON, PAUL H. Physician's role in diagnosis, management of the mentally retarded. *Pediatric Clinics of North America,* 15(4):835-860, 1968.

The physician is required to detect clinically, and by laboratory studies, MR at all ages; therefore, he must be thoroughly familiar with child development, know what factors place an infant "at risk," observe the infant and preschool child periodically, and screen for metabolic disorders. The Denver Developmental Screening Test may be useful and referral to a specialty clinic is appropriate. The physician is a leader or coordinator in the multidisciplinary team approach to the assessment of the MR and development of a program of services required by the individual. MRs often have medical needs above those of normal children due to an increased susceptibility to infection. Socialization, physical fitness, avoidance of obesity, and play aimed at developing interest and abilities is advised. The physician must not allow his own feelings toward the child and his parents to interfere with his management. The prevention, amelioration, and correction of physical handicaps through surgery, physical therapy, counseling, everyday care and handling, speech therapy, and hearing aids is imperative. The MR is also more susceptible to behavioral and emotional problems at stressful periods; therefore, education and counseling of parents, and psychotherapy and drugs for the patient are important in this regard. When services needed are not available, or when the health of the MR or the family is a consideration, then placement in an institution should be recommended. A working knowledge of community resources is essential in educating the MR to a degree commensurate with his potential. (46 refs.) - *L. E. Clark.*

Department of Pediatrics
University of Nebraska
College of Medicine
Omaha, Nebraska 68105

2111 FISHLER, KAROL, KOCH, RICHARD, SANDS, RUSSELL, & BILLS, JACK. Attitudes of medical students toward mental retardation: A preliminary study. *Journal of Medical Education,* 43(1):64-68, 1968.

Questionnaire responses given by 36 senior medical students before and after a 3-week rotation through a child development clinic revealed that although the students felt themselves poorly prepared on the subject of MR, they were able to absorb the clinic philosophy during their stay there. Shifting views of priorities in the field of MR showed a significant increase in medical and psychological areas and a decrease in custodial and sterilization areas after clinical exposure. A change in attitude away from early institutionalization and toward home care for the MR child reflected the philosophy of the clinic. The role of the pediatrician on the team was continually seen as dealing with medical aspects of MR and the psychologist as dealing with testing, but the social worker came to be seen as a social evaluator rather than as a caseworker. An apparent lack of appreciation for the social implications of MR and its emotional impact on the parents points up a significant shortcoming in medical education. (6 refs.) - *E. L. Rowan.*

Child Development Division
Childrens Hospital of Los Angeles
4614 Sunset Boulevard
Los Angeles, California 90027

2112 PAPAZIAN, CLEMENT E. Can we work together? A pediatrician's point of view. *Academic Therapy Quarterly,* 3(3):141-145, 1968.

New pediatrics encompasses all facets of care for the MR child, not just correction of physical defects. Two pediatric projects, the Learning Disability Clinic (LDC) and the Child Development Study (CDS), have been developed within a large prepayment medical health plan which covers approximately 600,000 members in southern California. The medical group is made up of 550 physicians of all the medical specialities and a limited number of general practitioners. Referral is made to the LDC from the membership, includes learning problems in the broadest sense, and ages have ranged from 3 to 17 years. The study includes record of birth, health history, psychological profile, presence of both parents at the clinic, and complete physical and neurological examinations. Approximately 350 patients have been served and there has been excellent cooperation between the physician, school personnel, and the parents

working together as a team. The CDS was set up to follow potential "high risk" infants born to health plan parents. The CDS is based on the work of Knoblock and Pasamanick who have found "correlation between prenatal perinatal, and post-natal problems and neurological dysfunction in later life." Charts from 3,390 newborns have been examined with 962 potential high-risk infants now under study whose development will be followed at 6 months, 1 year, and annually. (4 refs.) *M. L. Wiltshire.*

Southern California Permanente
Medical Group
Fontana, California

2113 BARRASS, MARGARET. The physiotherapist in school. *Special Education*, 57(2): 6-9, 1968.

The physiotherapist in a special school must be flexible enough to undertake responsibility for the treatment of continuing physical disabilities in individual and group activity sessions, as well as assisting patients during clinic and home visits, participating in research and experimental projects, and overseeing the use of special equipment, while pursuing his primary interest in motor skills. Consultation and cooperation between physiotherapists and other teachers is essential in order that the child may progress in all aspects of the special school program. (No refs.) - *C. Rowan.*

Percy Hedley Centre
Newcastle upon Tyne, England

2114 INSALACO, CARL, & HECKEL, ROBERT V. Internships for clinical psychologists in mental retardation. *Mental Retardation (AAMD)*, 6(6):46-48, 1968.

A conference on clinical psychology internships was held in an attempt to evaluate some of the current problems of university training for those interested in working with the MR. It was agreed that university staff should initiate internship experience for students; the concept of interdisciplinary programs and the need for better and improved communications with other disciplines was introduced. It was suggested that the Public Health Service should provide for post-doctoral training in MR. A need for future conferences to review some of the problems raised but not specifically dealt with at the conference is indicated. (4 refs.) *S. Half.*

University of South Carolina
Columbia, South Carolina 29208

2115 BLESSING KENNETH, ed. *The Role of the Resource Consultant in Special Education.* Washington, D. C., The Council for Exceptional Children, 1968, 127 p.

The major role of the resource consultant in special education is the provision of dynamic supervision directed toward the facilitation of program growth and the fostering of meaningful change. Feedback information and constructive change are prerequisites for improvement in special education programs. Dynamic supervision is based on the premise that staff personnel are both capable of, and desire to attain, growth and professional maturation. Good special education supervision provides leadership which: inspires the improvement of program quality; helps teachers to develop realistic confidence in their own decision-making abilities, and to utilize team teaching methods, paraprofessionals, and new and experimental hardware and teaching media; emphasizes the provision of constructive feedback information; provides descriptive models of effective teaching behaviors which special educators may use for evaluation and modification purposes; and utilizes research data for inservice and continuing education purposes. These positional papers provide in depth treatment of the roles of resource consultants in the areas of visual impairment, hearing impairment, emotional disturbance, MR, speech, physical handicap, learning disability, and giftedness which include discussions of the current and future nature of their administrative, supervisory, and coordinating roles. They should be of interest to educators, special educators, resource consultants, and school administrators. (42 refs.) - *J. K. Wyatt.*

CONTENTS: Overview (Blessing); The Role of the Resource Consultant in the Education of the Visually Impaired (Alonso); The Role of the Resource Consultant for the Hearing Impaired (Bothwell); The Role of the Resource Consultant in Educational Planning for Emotionally Disturbed Children (Knoblock); The Resource Consultant in Mental Retardation (Warfield); The State Consultant in a Speech Correction Program (Black); The Consultant in Programs for the Physically Handicapped (Bigge); The Consultant for Programs for the Gifted (Martinson); and The Consultant for Children with Special Learning Disabilities (Barsch).

2116 WARFIELD, GRACE J. The resource consultant in mental retardation. In: Blessing, Kenneth R., ed. *The Role of the Resource Consultant in Special Education.* Washington, D. C., The Council for Exceptional Children, 1968, Chapter 5, p. 51-68.

MR specialists may assume a wide variety of consultant jobs and roles which present increasing challenges and opportunities for work with the whole school, the community and society. Community MR consultants should be prepared to provide a strong public relations role, leadership in new program planning and in adaptation to new programs, and knowledge of where and how to secure financial support. School MR consultants should assess the status and climate of the school community with regard to MR students and work with the director of special education and with key persons in the administrative hierarchy to identify directions of change. The school consultant should: plan and schedule activities designed to provide direct assistance and guidance for teachers of special classes for MRs; participate in recruitment and employment of teachers for the MR program; take a leadership role in the planning, preparation and publication of curriculum or program guides; and present and interpret non-segregated class placement program possibilities for MR students to general educators. All special consultants should function as a team when necessary. They should cooperate to provide complicated handicapped children with continual evaluation, flexible programing and extensive study. Programs for TMRs should be guided by careful preplanning; the establishment of a thorough screening process, continual evaluation; the development of community resources to provide day care and supervision, recreation, and sheltered workshop employment; flexible placement policies for borderline cases; and the provision of special preparation for teachers. MR consultants should possess expertise and knowledge about federal, state, community, and private agencies. (11 refs.) - *J. K. Wyatt.*

2117 BLAKE, R. M. Teachers in training: From Scott to Seebohm. *Teaching and Training,* 6(4):99-102, 1968.

Training councils for teachers of the MR and numerous new training courses have been developed, as an out-growth of the Scott Report, which clearly emphasizes status, functions, policies, procedures, responsibilities, and the individual staff member's specific role and to whom he is directly responsible. Training courses are rapidly expanding throughout the country and there appears to be a sufficient number of dedicated, enthusiastic applicants. There are courses for junior and adult center staff of 1 year for those with experience, and a 2-year training course for those without any prior experience. These are all recognized by the Ministry of Education and Science. There is a decided need for specialization for teachers working with MR children; these children need particular guidance and assistance in the areas of self-care, social awareness, personal adjustment, and social and behavioral acceptance. Teachers should have a direct line of communication to immediate superiors and a clear understanding and adequate knowledge of his specific role and involved responsibilities. The Scott Report made recommendations as to staff ratio, holidays, and working hours. The Seebohm Report, even more extensive than the Scott Report, leaves many unanswered questions in the minds of educators. (No refs.) *S. Half.*

No address

2118 ROTBERG, JAY M. Defining the task of teachers of the educable mentally retarded. *Education and Training of the Mentally Retarded,* 3(3):146-149, 1968.

Selective observational methodology termed the critical incident technique used in Pittsburgh schools having special class programs for the EMR revealed severe teaching deficiencies in meeting the children's educational needs and provided a classification of teacher behavior and their classroom tasks. Teachers experienced great difficulty in the area of managing individual and group classroom behavior. Physical punishment was prevalent but not effective and teaching plans developed to meet the students' needs were for the most part noneffectual. Research appears to be indicated so that more meaningful methods can be developed to readily and more ably identify the abilities and deficiencies of the student as well as to plan for a modification of the youngster's behavior. The importance of exposing teachers to better and improved training methods in both teacher-training facilities and inservice programs must be emphasized. Suggestions were submitted to enable the EMR the opportunity to receive the best and finest classroom instruction available. (1 ref.) - *S. Half.*

New England Materials Instruction
Center for Handicapped Children and Youth
Boston University
Boston, Massachusetts 02118

2119 CASTRICONE, NICHOLAS RAYMOND. A study of intrateacher group variations: The measured interests of teachers of the educable mentally handicapped. *Dissertation Abstracts*, 28A(10):3879, 1968.

Special teachers (145) in the Virginia public schools were surveyed using the Kuder Preference Record and The Career Choice Checklist to determine the reasons for the selection of special class teaching as a career. The Kuder profiles revealed that categories of social service were 22 percentiles higher for special education teachers than for regular teachers and clerical and musical were several percentiles lower. All profiles for special class teachers showed more variability than did regular teachers' profiles. Recommendations from the study are: provide guidance personnel with study results; conduct longitudinal research on the efficacy of methods which interest potential special class teachers; investigate other differentiating characteristics of special class teachers; and conduct more research on personal characteristics and career choice factors. (No refs.) *M. Drossman.*

No address

2120 BEGAB, MICHAEL J. The effect of differences in curricula and experiences on social work student attitudes and knowledge about mental retardation. A dissertation submitted to the Catholic University, 135 p. Mimeographed. (Copies available from author)

The findings of an investigation on differences in curricula and experiences on the social work student's attitudes and knowledge about MR strongly support the conclusion that the only consistent relationship between thoughts, feelings, and action tendencies exists at the extremes of valence continuum. The inclusion of MR content in the basic social work education curriculum did not have a material effect on the knowledge and attitudes of the students. Knowledge obtained through direct association with MRs or their families caused more attitude change than knowledge alone. Graduating students tended to have more favorable attitudes toward MR than beginning students. (53 refs.) *J. K. Wyatt.*

CONTENTS: Review of the Literature; Theoretical Considerations and Assumptions; Methodology and Procedures; Presentation and Analysis of Data; and Summary and Conclusion.

PUBLICATIONS SCANNED

The following publications are scanned regularly for articles pertinent to mental retardation.

AAUP Bulletin
ACLD Items of Interest (Association for Children with Learning Disabilities)
ACT (American College Testing Program) Research Reports
AIA (Architectural Institute of America)
ALA Bulletin (American Library Association)
ASHA: A Journal of the American Speech and Hearing Association
AV (Audio-Visual) Communication Review
Academic Therapy Quarterly
Acta Anatomica
Acta Biologiae Experimentalis
Acta Chirurgiae Plasticae
Acta Endocrinologica
Acta Geneticae Medicae et Gemellologiae
Acta Genetica et Statistica Medica
Acta Haematologica
Acta Medica Scandinavica
Acta Morphologica
Acta Neurochirurgica
Acta Neurologica et Psychiatrica Belgica
Acta Neurologica Scandinavica
Acta Neuropathologica
Acta Obstetricia et Gynecologia Scandinavica
Acta Ophthalmologica
Acta Oto-Laryngologica
Acta Paediatrica Belgica
Acta Paediatrica Scandinavica
Acta Paedopsychiatrica
Acta Pathologica et Microbiologica Scandinavica
Acta Physiologica Latino Americana
Acta Physiologica Polonica
Acta Psiquiatrica y Psicologica de America Latina
Acta Psychiatrica Scandinavica
Acta Psychologica, Amsterdam
Activitas Nervosa Superior
Administrative Science Quarterly
Adolescence
Adult Education
Adult Leadership
Aerospace Medicine
Aerzliche Forschung
Agricultural Education Magazine
Alberta Journal of Educational Research
Alberta Psychologist
Amentia
America Latina, Brazil
American Annals of the Deaf
American Anthropologist
American Association for Health, Physical Education, and Recreation Research Quarterly
American Association of Colleges for Teacher Education Yearbook
American Association of School Administrators Official Report
American Behavioral Scientist
American Biology Teacher
American Child
American Corrective Therapy Journal
American Council on Industrial Arts Teacher Education Yearbook
American Ecclesiastical Review
American Education
American Educational Research Journal
American Foundation for the Blind, Research Bulletin
American Heart Journal
American Institute of Architects Journal
American Journal of Cardiology
American Journal of Clinical Hypnosis
American Journal of Clinical Pathology

American Journal of Digestive Diseases
American Journal of Epidemiology
American Journal of Hospital Pharmacy
American Journal of Human Genetics
American Journal of Medical Sciences
American Journal of Medicine
American Journal of Mental Deficiency
American Journal of Nursing
American Journal of Obstetrics and Gynecology
American Journal of Occupational Therapy
American Journal of Ophthalmology
American Journal of Optometry and Archives of American Academy of Optometry
American Journal of Orthodontics
American Journal of Orthopsychiatry
American Journal of Pathology
American Journal of Physical Medicine
American Journal of Physiology
American Journal of Proctology
American Journal of Psychiatry
American Journal of Psychoanalysis
American Journal of Psychology
American Journal of Psychotherapy
American Journal of Public Health
American Journal of Roentgenology
American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine
American Journal of Sociology
American Journal of Surgery
American Journal of Tropical Medicine and Hygiene
American Music Teacher
American Psychologist
American Review of Respiratory Diseases
American School and University
American School Board Journal
American Sociological Review
American Sociologist
American Surgeon
American Vocational Journal
Anaesthesia
Analyse et Prevision, France
Anatomical Record
Andover Newton Quarterly
Anesthesia and Analgesia: Current Researches
Anesthesia Progress
Anesthesiology
Angiology
Anglican Theological Review
Animal Behavior
Annales d'Endocrinologie
Annales de Genetique
Annales de Pediatrie
Annales Medico-Psychologiques
Annales Paediatriae Fenniae
Annali Sociologia, Italy
Annals Institute de Pasteur, Paris
Annals of Allergy
Annals of Human Genetics
Annals of Internal Medicine
Annals of Rheumatic Diseases
Annals of Surgery
Annals of the New York Academy of Sciences
Annals of Thoracic Surgery
Annee Psychologique
Annual of Animal Psychology, Tokyo
Antibiotiki
Antioch Review
Architects' Exchange
Architectural Forum
Architectural Record
Architectural Review
Archives Francaises de Pediatrie
Archives Italiennes de Biologie
Archives of Biochemistry and Biophysics
Archives of Dermatology
Archives of Disease in Childhood
Archives of Environmental Health
Archives of General Psychiatry
Archives of Internal Medicine
Archives of Neurology
Archives of Ophthalmology
Archives of Otolaryngology
Archives of Pathology
Archives of Physical Medicine
Archives of Surgery
Archiv fur die gesamte Psychologie
Archiv fur Geschwulstforschung
Archiv fur Kinderheilkunde
Archiv fur klinische und experimentelle Ohren-Nasen-und Kehlkopfheilkunde
Archiv fur Psychiatrie und Nervenkrankheiten
Archivio di Psicologia, Neurologia e Psichiatria
Archivos de Criminologia, Neuropsiquiatria y Disciplinas Conexas
Arhiv za Higijenu Rada i Toksikologiju
Arithmetic Teacher
Arizona Teacher
Art Education
Arthritis and Rheumatism
Arts and Activities
Association for Student Teaching Yearbook
Association for Supervision and Curriculum Development Yearbook
Athletic Journal
Audiovisual Instruction
Australasian Annals of Medicine
Australian Children Limited
Australian Journal of Experimental Biology and Medical Science
Australian Journal of Psychology
Australian Paediatric Journal

BINOP: Bulletin de l'Institut National d'Etude du Travail et d'Orientation Professionnelle
Balance Sheet
Behavior
Behavioral Science
Behavior Research and Therapy
Biochemical and Biophysical Research Communications
Biochemical Journal
Biochemical Medicine
Biochemistry

PUBLICATIONS SCANNED

Biochimica et Biophysica Acta, Amsterdam
Biofizika
Biologia Neonatorum
Biomedical Engineering, London
Biometrics
Birth Defects Original Article Series
Blood
Blut
Boletin Informativo (Instituto Nacional de Psiquiatria Infantil)
Boletin Informativo del Instituto Neurologico de Guatemala
Brain
Brain Research
British Heart Journal
British Journal for the Philosophy of Science
British Journal of Clinical Practice
British Journal of Criminology
British Journal of Dermatology
British Journal of Educational Psychology
British Journal of Educational Studies
British Journal of Industrial Medicine
British Journal of Medical Psychology
British Journal of Ophthalmology
British Journal of Pharmacology
British Journal of Preventive and Social Medicine
British Journal of Psychiatric Social Work
British Journal of Psychiatry
British Journal of Psychology
British Journal of Radiology
British Journal of Social and Clinical Psychology
British Journal of Surgery
British Medical Journal
Broadcaster (Newsletter of the Beatrice State Home, Beatrice, Nebraska)
Bulletin (Council of Social and Psychological Research, Calcutta)
Bulletin de l'Association Internationale de Psychologie Appliquee
Bulletin de Psychologie Scolaire et de'Orientation
Bulletin du C.E.R.P.
Bulletin of Suicidology
Bulletin of the British Psychological Society
Bulletin of the Dental Guidance Council for Cerebral Palsy
Bulletin of the Los Angeles Neurological Society
Bulletin of the Maritime Psychological Association
Bulletin of the Menninger Clinic
Bulletin of the National Association of Secondary School Principals
Bulletin of the New York Academy of Medicine
Bulletin of the School of Education (Indiana U.)
Bulletin of Tokyo Dental College
Business Education Forum
Business Education World
Byulletin' Eksperimental' noi Biologii i Meditsiny
CTA (California Teachers Association) Journal
Cahiers de Psychologie
Cahiers de Sociologie Economique
California Education
California Elementary School Administrators Association Monographs
California Journal of Educational Research
California Mental Health Research Digest
California Medicine
Canada's Mental Health
Canada's Mental Health Supplement
Canadian Anaesthetists' Society Journal
Canadian Education and Research Digest
Canadian Journal of Biochemistry
Canadian Journal of Physiology and Pharmacology
Canadian Journal of Psychology
Canadian Journal of Surgery
Canadian Journal of Theology
Canadian Medical Association Journal
Canadian Nurse
Canadian Psychiatric Association Journal
Canadian Psychologist
Canadian Review of Sociology and Anthropology
Cancer
Cancer Research
Cardiovascular Research
Casopis Lekaru Ceskych
Catholic Charities Review
Catholic Educational Review
Catholic Psychological Record
Catholic School Journal
Centro Ricerche Biopsichiche
Cerebral Palsy Journal
Ceskoslovenska Psychiatrie
Ceskoslovenska Psychologie
Character Potential
Cheshire Smile
Child and Family
Child Development
Child Development Abstracts and Bibliography
Childhood Education
Children
Children Limited
Children's House
Child Study
Child Study Center Bulletin (State University Coll. New York, Buffalo)
Chirurg
Christianity and Crisis
Christianity Today
Christian Scholar
Circulation
Circulation Research
Claremont Reading Conference Yearbook
Classical Journal
Clearing House
Clearing House Journal
Clergy Review
Clinica Chimica Acta
Clinical and Experimental Immunology
Clinical Chemistry
Clinical Pediatrics
Clinical Pharmacology and Therapeutics

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Clinical Proceedings of Children's Hospital of the District of Columbia
Clover Leaves-Observer
College and University
College English
College Student Survey
Color Engineering
Community Health
Community Mental Health Journal
Comparative Education Review
Comprehensive Psychiatry
Concordia Historical Institute Quarterly
Conditional Reflex
Conference on Reading (University of Chicago)
Confina Neurologica
Confina Psychiatrica
Connecticut Health Bulletin
Contemporary Education
Contemporary Psychoanalysis
Contributi dell'Instituto di Psicologia
Cornell Journal of Social Relations
Corrective Psychiatry and Journal of Social Therapy
Cortex
Council for Research in Music Education
Counselor Education and Supervision
Courrier
Crime and Delinquency
Current Contents: Life Sciences
Current Therapeutic Research
Cytogenetics

DSH Abstracts
Dapim Refuiim
Defence Science Journal
Delaware Association for Retarded Children--News
Der Landarzt
Deutsche Medizinische Wochenschrift
Deutsches Aerzteblatt
Deutsche Zeitschrift fur Nervenheilkunde
Developmental Medicine and Child Neurology
Developmental Psychology
Diabetes
Diabetologia
Diagnostica: Zeitschrift fur Psychologische Diagnostik
Didakometry
Die Medizinishe
Die Rehabilitation
Difesa Sociale
Digest of the Mentally Retarded
Diseases of the Chest
Diseases of the Colon and Rectum
Diseases of the Nervous System
Dissertation Abstracts
Doklady Akademii Nauk SSSR
Doshkol' noe Vospitanie

ETC: A Review of General Semantics
Economic Development and Cultural Change
Education
Educational and Psychological Interactions
Educational and Psychological Measurement
Educational Forum
Educational Leadership
Educational Record
Educational Records Bureau Bulletins
Educational Research (British)
Educational Screen AV (Audio-Visual) Guide
Educational Theatre Journal
Educational Theory
Education and Psychology Review
Education and Training of the Mentally Retarded
Education Digest
Education Index
Ek'sperimental ev Klinikakan Bzhshkowt'yan Handes
Electroencephalography and Clinical Neurophysiology
Elementary English
Elementary School Guidance and Counseling
Elementary School Journal
Encephale
Encounter
Endocrinology
Enfance
English Journal
English Language Teaching
Environmental Research
Epilepsia
Ergonomics
Eugenics Quarterly
Eugenics Review
Evangelische Theologie, Germany
Evolution Psychiatrique
Exceptional Children
Excerpta Criminologica
Experientia
Experimental Neurology
Explorations in Entrepreneurial History
Expository Times
Eye, Ear, Nose and Throat Monthly

Family Care Newsletter
Family Law Quarterly
Family Life Coordinator
Family Process
Farmakologiya i Toksikologiya
Federation Proceedings
Fertility and Sterility
Fiziologicheskii Zhurnal SSSR
Flight Safety
Forecast for Home Economics
Fortschritte auf dem Gebiete der Rotgenstrahlen und der Nuklearmedizin
Forum
Forward Trends
Foundations
France Medicale
Free University Quarterly, Holland
French Review

GAP (Group for the Advancement of Psychiatry) Report
Gastroenterology
Gastrointestinal Endoscopy
Gawein
Geburtshilfe und Frauenheilkunde
General Practice
Genetic Psychology Monographs
Genetika
Geriatrics
German Medical Monthly
German Quarterly
Gerontologia
Gerontologia Clinica
Gerontologist
Gifted Child Quarterly
Gordon Review
Grade Teacher
Graduate Research in Education and Related Disciplines
Group Psychotherapy
Gynaecologia
Gynakologe

Hachinuch
Harefuah
Harvard Educational Review
Harvard Theological Review
Headache
Health, Education and Welfare Indicators
Health Laboratory Science
Heilpadagogische Forschung
Heilpadagogische Werkblatter
Helvetica Paediatrica Acta
Hereditas
Hibbert Journal
High Points
High School Journal
Hispania
History of Education Quarterly
History of Religions
Hjertebladet
Homiletic and Pastoral Review
Hommes et Techniques
Hospital and Community Psychiatry
Hospital Practice
Hospital (Rio de Janiero)
Hospitals
Human Biology: An International Record of Research
Human Development
Human Factors
Humangenetik
Human Relations
HumRRO Professional Paper
HumRRO Technical Report
Hygiene Mentale

ICRH (Information Center, Recreation for the Handicapped) Newsletter
IEEE Transactions on Human Factors in Electronics
IMRD (Institute on Mental Retardation and Intellectual Development) Papers and Reports
Illinois Education
Illinois Medical Journal
Illinois Schools Journal
Immunology
Impact of Science on Society
Improving College and University Teaching
Indian Educational Review
Indian Journal of Extension Education
Indian Journal of Mental Retardation
Indian Journal of Psychology
Indian Jouranl of Social Work
Indian Journal of Theology
Indian Psychological Review
Individual Psychologist
Industrial Arts and Vocational Education/Technical Education
Industrial Relations
Infanzia Anormale
Information Psychologique
Insight: Quarterly Review of Religion and Mental Health
Institute of Dream Research Monograph Series
Instructor
International Archives of Allergy and Applied Immunology
International Bureau of Education Bulletin
International Child Welfare Review
Internationales Archiv fur Gewerbepathologie und Gewerbehygiene
International Journal for the Education of the Blind
International Journal of Clinical and Experimental Hypnosis
International Journal of Fertility
International Journal of Group Psychotherapy
International Journal of Neuropharmacology
International Journal of Neuropsychiatry
International Journal of Parapsychology
International Journal of Psychiatry
International Journal of Psycho-Analysis
International Journal of Psychology
International Journal of Radiation Biology
International Journal of Social Psychiatry
International Journal of Sociometry and Sociatry
International Nursing Review
International Pharmacopsychiatry
International Rehabilitation Review
International Review of Education
International Review of Missions
International Social Science Journal
International Yearbook of Education
Irish Journal of Medical Science
Israel Annals of Psychiatry and Related Disciplines
Israel Annals of Psychology and Related Disciplines
Israel Journal of Medical Sciences

Japanese Journal of Child Psychiatry
Japanese Journal of Educational Psychology
Japanese Journal of Experimental Medicine
Japanese Journal of Human Genetics
Japanese Journal of Medical Science and Biology
Japanese Journal of Pharmacology
Japanese Psychological Research
Jewish Education
Jewish Parent
Jewish Social Studies
Johns Hopkins Medical Journal
Journal de Chirurgie
Journal de Physiologie
Journal de Psychologie Normale et Pathologique
Journal for Social Research
Journal for the Scientific Study of Religion
Journalism Quarterly
Journal of Abnormal Psychology
Journal of Aesthetics and Art Criticism
Journal of Air Pollution Control Association
Journal of Allergy
Journal of Analytical Psychology
Journal of Applied Behavioral Science
Journal of Applied Behavior Analysis
Journal of Applied Physiology
Journal of Applied Psychology
Journal of Asthma Research
Journal of Auditory Research
Journal of Bacteriology
Journal of Biological Psychology
Journal of Bone and Joint Surgery
Journal of Business Education
Journal of Cell Biology
Journal of Chemical Education
Journal of Child Psychology and Psychiatry and Allied Disciplines
Journal of Church and State
Journal of Clinical Endocrinology
Journal of Clinical Endocrinology and Metabolism
Journal of Clinical Investigation
Journal of Clinical Pharmacology
Journal of Clinical Psychology
Journal of College Placement
Journal of Communication
Journal of Communication Disorders
Journal of Comparative and Physiological Psychology
Journal of Conflict Resolution
Journal of Consulting and Clinical Psychology
Journal of Counseling Psychology
Journal of Creative Behavior
Journal of Criminal Law, Criminology and Police Science
Journal of Dentistry for Children
Journal of Ecclesiastical History
Journal of Education
Journal of Educational Measurement
Journal of Educational Psychology
Journal of Educational Research
Journal of Emotional Education
Journal of Endocrinology
Journal of Engineering Psychology
Journal of Existentialism
Journal of Experimental Education
Journal of Experimental Medicine
Journal of Experimental Psychology
Journal of Experimental Research in Personality
Journal of Experimental Social Psychology
Journal of General Education
Journal of General Psychology
Journal of Genetic Psychology
Journal of Geography
Journal of Gerontology
Journal of Health and Social Behavior
Journal of Health, Physical Education, and Recreation
Journal of Heredity
Journal of Higher Education
Journal of Home Economics
Journal of Human Relations
Journal of Immunology
Journal of Individual Psychology
Journal of Industrial Arts Education
Journal of Investigative Dermatology
Journal of Jewish Communal Service
Journal of Laboratory and Clinical Medicine
Journal of Laryngology and Otology
Journal of Lipid Research
Journal of Marriage and the Family
Journal of Mathematical Psychology
Journal of Medical Education
Journal of Medicinal Chemistry
Journal of Mental Deficiency Research
Journal of Mental Subnormality
Journal of Music Therapy
Journal of Negro Education
Journal of Nervous and Mental Disease
Journal of Neurochemistry
Journal of Neurology, Neurosurgery, and Psychiatry
Journal of Neuropathology and Experimental Neurology
Journal of Neurophysiology
Journal of Neurosurgery
Journal of Neuro-Visceral Relations
Journal of Nuclear Medicine
Journal of Nutrition
Journal of Occupational Medicine
Journal of Oral Surgery
Journal of Oral Surgery, Oral Medicine and Oral Pathology
Journal of Parapsychology
Journal of Pastoral Care
Journal of Pathology and Bacteriology
Journal of Pediatrics
Journal of Periodontal Research
Journal of Personality and Social Psychology
Journal of Pharmaceutical Sciences
Journal of Pharmacology and Experimental Therapeutics
Journal of Projective Techniques and Personality Assessment
Journal of Psychiatric Nursing and Mental Health Services
Journal of Psychiatric Research
Journal of Psychological Researches

PUBLICATIONS SCANNED

Journal of Psychology
Journal of Psychopharmacology
Journal of Psychosomatic Research
Journal of Public Health Dentistry
Journal of Reading
Journal of Rehabilitation
Journal of Rehabilitation in Asia
Journal of Religion and Health
Journal of Research in Music Education
Journal of School Health
Journal of School Psychology
Journal of Secondary Education
Journal of Social Issues
Journal of Social Psychology
Journal of Special Education
Journal of Speech and Hearing Disorders
Journal of Speech and Hearing Research
Journal of Surgical Research
Journal of Teacher Education
Journal of the Academy of Psychologists in Marital Counseling
Journal of the Acoustical Society of America
Journal of the American Academy of Child Psychiatry
Journal of the American Dental Association
Journal of the American Dietetic Association
Journal of the American Geriatrics Society
Journal of the American Medical Association
Journal of the American Optometric Association
Journal of the American Physical Therapy Association
Journal of the American Psychoanalytic Association
Journal of the American Society for Psychical Research
Journal of the American Society of Psychosomatic Dentistry and Medicine
Journal of the American Statistical Association
Journal of the College of General Practice
Journal of the Experimental Analysis of Behavior
Journal of the Hillside Hospital
Journal of the History of the Behavioral Sciences
Journal of the Irish Medical Association
Journal of the National Cancer Institute
Journal of the National Medical Association
Journal of the Neurological Sciences
Journal of the Optical Society of America
Journal of the Reading Specialist
Journal of the Scottish Society for Mentally Handicapped Children
Journal of the Society for Psychical Research
Journal of the Wisconsin State Dental Society
Journal of Thoracic and Cardiovascular Surgery
Journal of Thought
Journal of Trauma
Journal of Typographic Research
Journal of Urology
Journal of Verbal Learning and Verbal Behavior
Journal of Virology
Journal of Vocational and Educational Guidance
Judaism
Junior College Journal
Jyvaskyla Studies in Education, Psychology and Social Research

Kansas Studies in Education (Kansas U.)
Kentucky School Journal
Khirurgiia, Moscow
Kleine Fachbuchreihe (Kuratorium fur Verkehrssicherheit, Vienna)
Klinische Medizin, Vienna
Klinischeskaya Meditsina
Klinische Wochenschrift, Berlin
Kolner Zeitschrift fur Soziologie and Sozialpsychologie

LTSH Observer (Lynchburg Training School and Hospital)
Laboratory Investigation
Lakartidningen, Stockholm
Lancet
Language and Speech
Language Learning
Larartidningen
Laryngoscope
Laval Medical, Quebec
Learning Disabilities
Lebenshilfe
Liberal Education
Library Quarterly
Life Sciences
London Quarterly and Holborn Review
Lumen Vitae, Belgium
Lupta de Clasa, Rumania
Lutheran Quarterly
Lutheran World

Magyar Pszichologiai Szemle
Main Currents in Modern Thought
Monas
Mathematics Teacher
Mayo Clinic Proceedings
Measurement and Evaluation in Guidance
Medecine Infantile
Medical and Biological Illustration
Medical Care
Medical Journal
Medical Journal of Australia
Medical Research Engineering
Medical Thoracalis

Medical World News
Medicine
Medizinische Klinik, Munich
Medizinische Welt, Stuttgart
Megamot
Menninger Quarterly
Mennonite Quarterly Review
Mensch und Arbeit
Mens en Onderneming
Mental Health (National Association for Mental Health, London)
Mental Health Digest
Mental Hygiene
Mental Retardation (AAMD)
Mental Retardation (Canadian ARC)
Mental Retardation Abstracts
Mental Retardation in Illinois
Merrill-Palmer Quarterly
Metabolism
Metabolism, Clinical and Experimental
Michigan Education Journal
Middle States Association of Colleges and Secondary Schools Proceedings
Milbank Memorial Fund Quarterly
Military Medicine
Mind Over Matter
Minerva Medica
Minerva Medical Journal
Minerva Pediatrica, Turin
Minnesota Journal of Education
Minnesota Studies in Vocational Rehabilitation
Missouri Journal of Research in Music Education
Modern Language Journal
Monographies Francaises de Psychologie
Monographs of the Society for Research in Child Development
Montana Education
Motive
Multivariate Behavioral Research
Multivariate Behavioral Research Monographs
Munchener Medizinische Wochenschrift, Munich
Music Educators Journal
Music Journal
Muslim World
Muzika, Rumania

NCEA (National Catholic Educational Association) Bulletin
NEA (National Educational Association) Research Bulletin
NEA (National Education Association) Journal
Nachal'naya Shkola
National Association of Secondary School Principals Bulletin
National Association of Student Councils Yearbook
National Association of Women Deans and Counselors Journal
National Business Education Quarterly
National Business Education Yearbook
National Council for the Social Studies
National Council of Teachers of Mathematics Yearbook
National Education Association Addresses and Proceedings
National Elementary Principal
National Institute of Industrial Psychology Paper
National Merit Scholarship Corporation Research Reports
National Society for the Study of Education Yearbook
Nation's Schools
Nature
Nauka i Religiya
Nauka i Zhizn'
Nebraska Symposium on Motivation
Nederlands Tijdschrift voor de Psychologie en haar Grensgebieden
Nederlands Tijdschrift voor Geneeskunde
Nervenarzt
Neue Zeitschrift fur Systematische Theologie
Neurologia, Psihiatria, Neurochirurgia
Neurology
Neuropsichiatria
New England Journal of Medicine
New Scholasticism
Newsletter of Chaplains and Other Religious Workers Subsection AAMD
Newsletter of the International Union for Child Welfare
Newsletter of the New Jersey Association for Brain Injured Children
Newsletter of the Tennessee Association for Retarded Children and Adults
Newsletter--The Aid for Retarded Children, Inc. of Stamford, Connecticut
New York City Board of Education Curriculum Bulletins
New York Society for the Experimental Study of Education
New York State Education
New York State Journal of Medicine
Ninos
Nordisk Medicin
Nordisk Psykologi
North Carolina ARC News
North Central Association Quarterly
Northeastern Studies in Vocational Rehabilitation
Nos Enfants Inadaptes
Nouvelle Revue Theologique
Nova et Vetera, France
Nursing Mirror
Nursing Outlook
Nursing Research
Nutrition Reviews

Obstetrics and Gynecology
Occupational Mental Health Notes
Occupational Psychology
Ohio Schools

Ohio State Medical Journal
Ontario Journal of Educational Research
On Your MARC (Massachusetts Association for Retarded Children)
Onze Taak
Operations Research
Ophthalmologica
Oral Surgery, Oral Medicine and Oral Pathology
Organizational Behavior and Human Performance
Orientamenti Pedagogici
Orvosi Hetilap
Our Children

PTA Magazine
Pacific Medicine and Surgery
Padiatrie und Padologie
Panminerva Medica
Papers in Psychology
Parents' Voice
Parks and Recreation
Past and Present
Pastoral Counselor
Pastoral Psychology
Peabody Journal of Education
Pedagogisk Forskning
Pedagogisk-Psykologisk Problem
Pediatric Clinics of North America
Pediatric Research
Pediatrics
Pediatriya
Pennsylvania Message
Pennsylvania Psychiatric Quarterly
Pennsylvania School Journal
Perception and Psychophysics
Perceptual and Motor Skills
Personnel
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Psychological Research Bulletin
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Public Health Reports
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Public Opinion Quarterly
Public Personnel Review
Purdue Opinion Panel Poll Report

Quarterly Journal of Experimental Psychology
Quarterly Journal of Medicine
Quarterly Journal of Speech
Quarterly Journal of Studies on Alcohol

Radiation Research
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Record
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Research Quarterly
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Ridge News, State Home and Training School, Wheat Ridge, Colorado
Rivista Dell'Instuto Seroterapics Italiana
Rivista di Psicologia della Scrittura
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Rocky Mountain Social Science Journal
Romanian Medical Review

Royal Society of Medicine, Proceedings
Rural Sociology

SK&F Psychiatric Reporter
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Scandinavian Journal of Clinical and Laboratory Investigation
Scandinavian Journal of Psychology
Scholastic Coach
School Activities
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Schoolmen's Week, University of Pennsylvania
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Sociological Abstracts
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Sozial Welt, Germany
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Teachers College Record
Teaching and Training
Teaching Exceptional Children
Technical Bulletin of the Registry of Medical Technologists
Teratology
Texas Medicine
Texas Outlook
Texas Reports on Biology and Medicine
Theology and Life
Theology Today
Theoria: A Swedish Journal of Philosophy
Theory into Practice
Thorax
Tidsskrift for den Norske Laegeforening, Oslo
Tijdschrift voor Geneeskunde, Louvain
Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg
Times Educational Supplement, London

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Trans-Action
Transactions of the New York Academy of Sciences
Transactions of the Westermarck Society
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Travail Humain
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Vestnik Otorinolaringologii, Moscow
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Viata Romineasca
Victoria University of Wellington Publications in Psychology
Virginia Journal of Education
Virology
Vocational Guidance Quarterly
Voix Silence
Volta Review
Volunteer Council News (Lynchburg Training School and Hospital)
Voprosy Filosofii
Voprosy Psikhologii
Voprosy Sravnitel'noi Fiziologii Analizatorov
Vox Sanguinis
Vrachebnoe Delo, Kiev

WHO (World Health Organization) Bulletin
WHO (World Health Organization) Chronicle
Warren G. Murray Children's Center (State of Illinois Department of Mental Health)
Washington University Department of Psychology Technical Report
Welfare in Review
Welfare Reporter
Wesleyan Studies in Religion
Wiener Klinische Wochenschrift
Wiener Medizinische Wochenschrift
Wilson Library Bulletin
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Wisconsin Journal of Education
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